

FLIGHT

The
AIRCRAFT ENGINEER
AND AIRSHIPS

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1930	
Oct. 14	.. British Gliding Association, Dinner to Herr Kronfeld, at Trocadero.
Oct. 18	.. Reunion Supper of 28 Sqdn. (R.A.F.) Old Boys' Association, at White Horse, High Holborn.
Oct. 21	.. Society of Engineers' Dinner to Miss Amy Johnson, at Holborn Restaurant.
Oct. 23	.. Lecture, "Air Transport in Fog," by F. W. Meredith, before R.Ae. S.
Oct. 25	.. Meeting of Assoc. of Northern Gliding Clubs, Hotel Metropole, Leeds.
Nov. 13	.. Lecture, "Testing the Control of Aeroplanes," by H. L. Stevens, before R.Ae. S.
Nov. 20	.. Lecture, "Recent Developments in Engine Cooling," by Capt. H. Swan, before R.Ae.S.
Nov. 25	.. Norfolk and Norwich Ae.C. Annual Ball, Andrews Hall, Norwich.
Dec. 4	.. Lecture, "The Four-Foot Wind Tunnel," by H. Glauert, before R.Ae.S.
Dec. 11	.. Lecture, "Axial Engines," by M. L. Bramson, before R.Ae.S.
Nov. 28- Dec. 14	Paris Aero Show.
1932	
May 31	.. Closing date for Cillon Cross-Channel Glide £1,000 Prize.

EDITORIAL COMMENT

ORDINARY words seem futile to express the grief and horror inspired by the tragic loss of R 101. Our first thoughts must needs be of personal loss, and those on the staff of FLIGHT had more than one valued friend on board the airship. Next we must remember that we have lost our Air Minister. Lord Thomson was popular with all who knew him, and for his abilities as Air Minister we had learnt to feel a profound respect. We have still a warm feeling of gratitude for the kindly message of congratulation which he sent to FLIGHT for its 21st birthday issue last January. Lord Thomson was devoted equally to the interests of the Royal Air Force, of civil flying, and of airships. He gave his best to all, and his measures were wise and well-conceived. It will be hard for Mr. MacDonald to find his equal. With the Air Minister there perished two heads of Directorates of the Air Ministry, namely, the Directors of Civil Aviation and of Airship Development. Wing Commander Colmore had only recently been appointed Director. He was a modest man, whose solid and charming qualities were known to comparatively few. Sir Sefton Brancker's name was known pretty well throughout the world. He was a martial propagandist, which was just what civil aviation needed in its Director during its adolescence. He simply forced aircraft upon the notice of all and sundry, and his energy was only equalled by his ability. The flying club movement will be one great monument to his memory. We wonder what future ages will think of Major Scott. If airships become, as is still possible, a regular craft either of commerce or of naval patrol, Scott will be ranked with Eckener as the two greatest among the early airship captains. In any case, G. H. Scott, like his namesake, Captain Scott of South Pole fame, was a gallant gentleman who gave his life in the attempt to solve great problems.

What caused the crash? We cannot anticipate the findings of the official enquiry, but certain points stand out. The failure may have been: (a) structural,

(b) aerodynamic, (c) a failure of airmanship, (d) failure of some accessory, such as the jamming of a control or the failure of an altimeter; or a combination of some of these. We may, on the present evidence, rule out absolutely the possibility of fire in the air, and we think that a failure of the structure is equally unlikely. We can see no reason for supposing that the insertion of the extra bay should have made R 101 any less efficient aerodynamically than she was before. That an instrument or a control may have failed is a possibility about which nothing can be said at the moment. But it seems clear that the airship was too low at the time of the crash. We do not know if the airship knew her height above the ground. If there was a reluctance to gain height by releasing ballast, because there was not enough ballast on board, it shows either that the weight of the loaded ship was a fatal defect or that the airmanship was faulty. We know that there was water on board, and we think it hardly likely that fuel oil had been jettisoned, as has been suggested. The airship, moreover, could have risen some distance by dynamic lift. The course had been decided upon at the last moment, which was inevitable, and there was little time for all the officers to study it. It is quite probable that the officer on duty did not know of the dangerous down-current in that district. It seems to us that, allowing for all the difficulties consequent on the weight of the ship, she ought to have been flying at a greater altitude. More we cannot say until further evidence is available.

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The extent of the effect upon the future airship policy of Great Britain which the R 101 disaster will have cannot be estimated at the moment. That it is likely to be great is fairly obvious. Already

Future Airship Policy

before the disaster, and, in fact, while the two airships R 100 and R 101 were still in course of construction, there was a volume of opinion which held that the work should be stopped, the airship antagonists claiming that there were fundamental reasons why airships could never become practical transport vehicles. On the other hand, the advocates of airships maintained, and with a good deal of technical support, that by taking advantage of the latest scientific and technical knowledge of the subject, airships very much larger than any hitherto constructed could be produced, and that by their size they would attain a far greater degree of practical utility in the matter of range and useful load than had any previous airships. It would have been highly unsatisfactory to leave the airships in a partly completed state, as in that case all the work done upon them would certainly have been entirely wasted, while by completing them and putting them through a series of experimental tests, we should, at any rate, learn something from the experiment, and *might* settle once and for all whether airships were "worth going on with" or not. The flight of R 100 to Canada and back recently was one of these experimental test flights. The flight of R 101 to India and back was to have been another. The sad story of how this flight was cut short is now known to all. What is not known definitely yet is how the accident happened, and upon the results of the official inquiry the future airship policy of Great Britain must largely depend.

Should the Court of Inquiry decide that the accident was due to structural failure, the result can, it seems

to us, only be a definite and immediate abandonment of further work on large rigid commercial airships. Whatever the range and carrying capacity of the two five million cubic foot airships, the one assurance that was always being given during the construction of the ships was that they would be strong. They might be needlessly strong, and therefore heavier than necessary. But "safety first" was to be the first and foremost consideration, and all others had to give way to this. If, therefore, it should be found that the airship, into the production of which had been put all the accumulated collective experience at our disposal, failed structurally, then it is logical to argue that if this was the best we could do, there is little excuse for continuing the work. Our own opinion is that so far there has been no evidence that structural failure took place. The report spread by a news agency that a high Air Ministry official had stated that structural failure had been traced has been authoritatively denied and may definitely be discounted.

Even if the Court of Inquiry should decide that no material defect caused the accident, but that this was due to the airship finding itself at an altitude over the ground too low in the weather conditions obtaining at the time, and that the ship simply grounded while under way, the accident cannot but have a profound effect on our future airship policy. For if R 101 was at that low altitude because she could not attain a greater, it shows that she was loaded to a dangerous extent, and the only reason for so loading her would be to make sure of having on board enough fuel to carry her to Egypt. Of useful load, as it would be understood in a commercial airship, she carried practically none. Therefore almost her entire lifting capacity was utilised in carrying her crew and fuel for the flight to Egypt. The chief argument in favour of airships has always been that they are long-range aircraft *par excellence*. The distance from Cardington to Egypt (2,500 to 3,000 miles) is not a formidable one in these days of air travel, and if the only two ways in which that distance can be covered by airships in "all-red" stages are either by going to even larger airships, or by having an intermediate stop at Malta, for instance, then the wisdom of continuing with airships is open to challenge. If larger airships are needed, it would mean another three, and possibly five, years before a much larger airship could be completed. And one must take into account here the progress which aeroplanes (landplanes or seaplanes) may be assumed to make in that period. Large flying boats are now under construction which should have range and carrying capacity sufficient for the needs of the British Empire, with the exception of the Atlantic crossing. In five years' time, it is justifiable to assume, we shall have even larger and better flying boats. Thus, it might well be that by the time a larger airship could be built, tested and put into service, it would be outclassed on almost every score by the flying boats of that time.

If it is argued that a replica of R 101 could be built quickly, but admitted that shorter ranges are needed in order to give greater useful load, then the speed made good on a route will certainly be too low by comparison with aeroplanes and seaplanes, at any rate, when the latter are flying by night. This inequality between the speed of an airship and an aeroplane will tend to increase with the years as the economic cruising speed of an aeroplane gradually goes up.



Just before the start from Cardington on Saturday. (FLIGHT Photo.)

THE LOSS OF H.M. AIRSHIP R 101

Death of Lord Thomson and 47 Others

WE very deeply regret to have to record the destruction of the airship R 101 at 2.10 a.m. (G.M.T.) on Sunday, October 5. There were on board 54 persons, of whom eight managed to get out of the airship with their lives, but two of them died in hospital afterwards. The complete list is given in another place. Among those who were lost were the Secretary of State for Air, Lord Thomson of Cardington, Wing-Commander R. B. B. Colmore, Director of Airship Development, Sir Sefton Brancker, Director of Civil Aviation, Major G. H. Scott and Col. V. C. Richmond, Assistant Directors of Airship Development, Squadron Leader Palstra, of the Royal Australian Air Force, and all the officers of the airship.

The story of the disaster is as follows. Early on the morning of October 1, R 101 was brought out of her shed after the insertion of a new bay, 45 ft. long, between the circular frames numbered 8 and 9, just aft of the passenger coach. As a consequence, the length of the airship was 777 ft., her gas capacity 5,500,000 cub. ft., and her gross lift upwards of 165 tons. The two forward Beardmore 585-h.p. Tornado engines had been made reversible, and all five engines were capable of driving ahead. Previously the starboard forward engine had been reserved for going astern. In four of the engine cars there were petrol starting engines, the petrol being stored in the power cars. The starboard forward engine had been provided with a Beardmore heavy-oil starting engine. The same evening the airship started on a trial flight up the east coast, and returned to the tower

at 7 a.m. on the next day, Thursday, October 2. As the test had been considered quite satisfactory, and the addition to the length of the airship had not made her any less easy to handle, it was decided to prepare at once to start on the flight to Ismailia and Karachi. It took 48 hours to get her ready for this flight, and, after considering weather conditions, the hour of 7 p.m. on Saturday the 4th was fixed for the start.

Scott

I went out to Cardington on the Saturday afternoon, accompanied by one of FLIGHT's photographers, and the photographs in this issue of the various officers and officials

who went on the flight were taken that afternoon. First I met Major Scott, an old and valued friend, outside the main offices of the Royal Airship Works, and had a talk with him. Scott was an exceptionally attractive personality. It is very rare to meet a man so absolutely enthusiastic about his subject and yet with such a calm judicial mind. He was a man who would hear every side of a question, discuss it fully, give every weight to arguments on the other side, and come to a decision on the sheer merits of a question. Attacks by people who differed from him never seemed to ruffle him in the slightest. He never sought publicity for himself, though he was always ready to talk frankly and fully with anyone who

genuinely wanted to get a grip of airship questions. He was both man of action and man of brain. He will be chiefly remembered for his successful command of first R 34, and recently R 100, on double crossings of the Atlantic. But perhaps he never showed his skill as an

TO ENGLAND

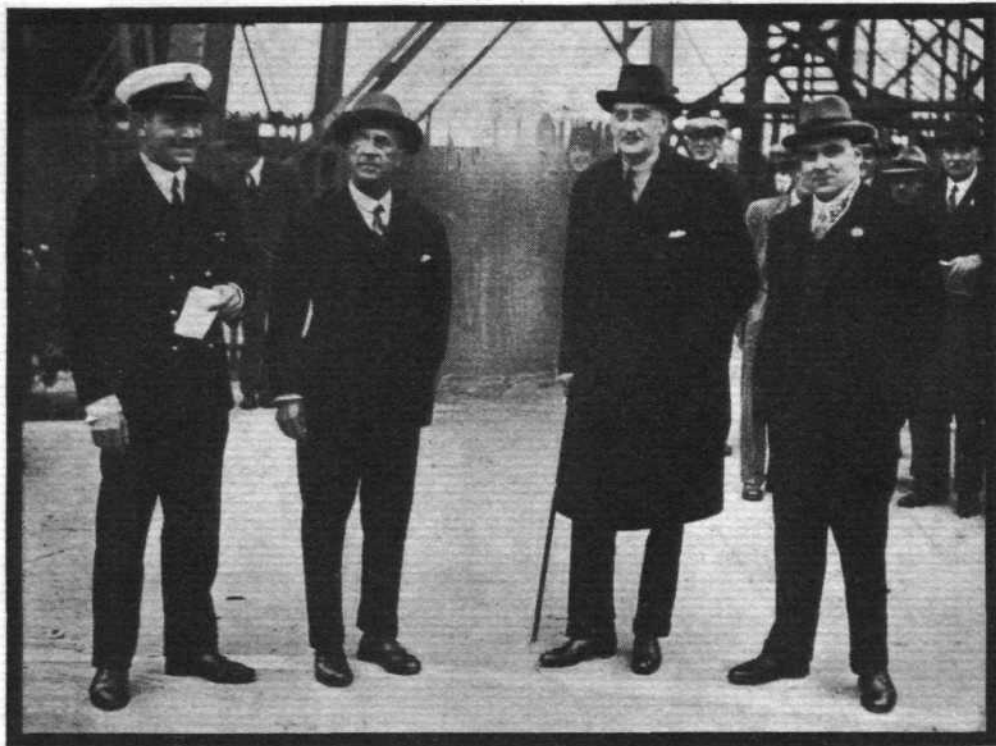
Mourn! not despairing, as should hope depart—
When great thy grief, be thou thyself more great;
For ease thou wast not made; lift up thy heart
By trial formed to triumph over fate.

See, through thy tears, heroic faces beam
Of those thy sons, who for the love of thee
Assailed the skies, to fall in faith supreme
That thou the conquest they have missed shalt see.

Be brave to bear, as they were bold to soar;
Abandon not the aery paths they trod;
And, for their sake, endeavour thou the more
To take the way that bore their souls to God.

DARLING.

This poem by Lord Darling in the "Times" is reproduced by kind permission.



Sqn.-Ldr. E. L. Johnston, A.F.C., O.B.E.; Sir Sefton Brancker, K.C.B., A.F.C.; Lord Thomson of Cardington, C.B.E., D.S.O.; Lt.-Col. V. C. Richmond, O.B.E.
(FLIGHT Photo.)

airship captain more brilliantly than on the trial flight of R 36. Before carrying out her high speed trials he gave the order "Five thousand," and the airship was taken up to that height. Had a similar precaution been taken on the "Roma," there would probably have been one less tragedy on record. During the trial one of the control surfaces, an elevator, I think, on R 36 gave way. But Scott was at a safe height, and he was able, by moving his crew about the hull, to trim her and to bring her safely to earth. He was also an inventor, and not a few patents were taken out in his name. In particular, he designed the head of the mooring tower, a sound and successful piece of engineering work. On Saturday afternoon Scott explained to me that he was not a passenger on either R 100 or on R 101. He was officer in command of the flight, and that was why he was wearing uniform. He decided all such points as when the ship would sail, her course, her speed, her altitude. The captain of the ship commanded the crew, and was responsible for carrying out his (Scott's) orders.

Colmore

Next, I met Wing-Commander Colmore, the D.A.D., another old friend. He was another exceptionally charming personality. I can best describe him by saying that he was the best type of naval officer, and there is no finer type of British gentleman. He loved the sea, and knew that it was the proper element for an airship to have below it. He, too, had put his brains and his life into the cause of airships. The years when nothing was being done must have been very weary to him. One can imagine, too, that the many delays in producing the two airships must have irked an enthusiast. But the policy of making everything as safe as human skill and knowledge could make it was rigidly adhered to. The Directorate of Airship Development, first under Group Captain Fellowes, assisted by and later succeeded by Colmore, deserves the greatest credit for refusing to be hustled one iota by popular outbursts of impatience in some sections of the Press and in Parliament. The completion of the airships, their successful trials, and the triumph of R 100 in crossing the Atlantic, must have caused the greatest joy to Colmore, all the sweeter because of the long delay. Yet he never showed signs of

undue elation. He was always imperturbably charming, and always calmly summing up the situation and the improvements still needed. His admission that fabric on rigids needed still further improvement only increased the confidence which he inspired when he said that this or that was quite satisfactory. It will be noticed in the photograph that Wing-Commander Colmore wore mufti for the flight. On the ground the Director was supreme; in the air he was a passenger with no executive responsibilities.

Richmond

It was round the base of the tower that I met other old friends, and notably Lieut.-Col. V. C. Richmond. He, too, was in mufti. Like Scott, he was an Assistant Director, but in the air he, too, did not belong to the executive. I first met Richmond just before the Armistice, when I was employed at the Air Ministry, and he was in charge of the works at the White City where envelopes were made for non-rigid airships. He was an unusual type of man, but a good friend to those who knew him well, especially if they were anxious to grasp the technicalities of airships. I owe a great deal to his readiness to help, and to the lucid manner in which he could explain a technical point to a non-technical mind.

His clarity of expression invariably carried conviction with it. It was always a marvel to me that a man who had spent his early energies on non-rigids could become the chief designer of the most revolutionary rigid airship ever conceived. It is admitted that R 101 turned out heavier than he had at first hoped, and critics made scathing remarks about the provision for 100 passengers. But if Richmond was over-optimistic on that point, it must never be forgotten that he steadfastly kept as his motto "Safety First." His ship was designed primarily to withstand every adverse circumstance which might be met in the air. Whatever may be the findings of the enquiry into the loss of R 101, it can never be denied that this airship embodied many brilliant points of design. It was very recently that one of the experts on board the "Graf Zeppelin" pronounced R 101 "the safest vehicle in the world, in the air, on land, or on the sea." We may yet live to see some of the features of R 101 embodied in other and more fortunate airships. If so, Richmond's work will live after him, and he will not have died in vain.

Squadron Leader Johnston and Lieut. Commander Atherstone, the navigator and the first officer, were round the base of the tower, chatting to friends. Flight-Lieut. Irwin was in the airship, and did not come down to say good-bye to his friends until shortly before the start. I had known Irwin on and off for several years, and he was a man for whom one took an instinctive liking even on short acquaintance. He looked somewhat tired and had doubtless been working very hard. It is very grievous to think that all these good men have gone.

The Start

Sir Sefton Brancker arrived by air at Henlow and drove over from there. Lord Thomson drove up about 6.30 with his valet and luggage, and posed for the photographers. All seemed confident and cheerful, and their happy faces contrasted with the gloomy looks of the spare members of the crew who had not been selected for the voyage. The thought crossed my mind that Sir Samuel Hoare must be feeling envious of Lord Thomson, and be cursing the political change which had deprived him of the chance of making this voyage. By 7 p.m. all had gone



Major G. H. Scott, C.B.E., A.F.C. (FLIGHT Photo.)



Wing Commander R. B. B. Colmore, O.B.E., Director of Airship Development.
(FLIGHT Photo.)

aboard, and the gangway was closed. Red and white lights appeared on the head of the tower, and one red light cast a curious ruddy glow over part of the nose of the ship. A flood light from the tower illuminated the silver belly of R 101. The airship, too, began to light up. Red and green navigation lights appeared on the lateral fins, the control car was brilliant with white light, and a fainter yellow glow from the windows of the dining room suggested that Lord Thomson and the other passengers were having dinner—"only a cold dinner to-night" said one of the officials to me with a grin. From the control car a small spot-light kept flashing from one engine car to another to watch the propellers twirling gently round. Then the new heavy-oil starting engine in the starboard forward car had trouble with its condensed air. *Quis custodiet ipsos custodes?* It is quaintly irritating when a starting engine cannot itself be started. This caused a delay, but in time the trouble was overcome, and all the Tornado engines were running gently and being warmed up. The scene was now, quite

beautiful, with the lights of various colours showing through the darkness. The afternoon had been fine though grey, with a south-west wind of about 20 m.p.h. blowing at the head of the tower. This was expected to continue throughout the passage across France, and it was known that conditions might get worse in France. It had been decided to fly over London and Paris, and then follow a course to the west of the Rhone valley, striking the Mediterranean about Narbonne. Up to that point the airship was to depend for weather forecasts on the wireless station at Cardington, but after she reached the Mediterranean the Malta station was to take charge of her from a meteorological point of view. Her wireless equipment gave her a speaking range of 900 miles by day and 1,500 miles by night. It was intended during the flight to practise simultaneous sending and reception on different wave-lengths.

The last moments before the cable was slipped were spent in adjusting nicely the trim of the airship. Several times water ballast was discharged from the forward tanks, and the drops as they cascaded down were illuminated by the flood light from the tower, and gave a fairy-like touch to the scene. At 7.36 p.m. a cheer from the crowd told that the mooring cable had been slipped. The said crowd had now assumed remarkable proportions, and I find it hard to believe that all had received Air Ministry passes to enter the airship station. The road from Bedford was lined as far as one could see with cars, whose headlamps made an almost continuous belt of light. All looked for a great success, something as splendid as the flight of R 100 to Canada and back, and more interesting because novel problems would be studied during the flight.

The heavily laden airship did not rise smartly above the head of the tower. Naturally she had on board every ton of fuel and ballast which she could carry. I was told that there were 25 tons of fuel oil, and some 8 tons of water ballast. Irwin was taking the watch, and he let the wind blow the ship gently backwards clear of the tower, while he skilfully regulated the drive of the engines. Slowly, rather sluggishly one might say, she backed, and slowly she raised her nose above the head of the tower. When she was clear, she began to move forward, very gently increasing her height. It struck me as extremely good handling. As she rose, the shape of her hull was lost in

the darkness, and only her lights could be seen. She first circled over her native town of Bedford, and as she did so a drizzling rain began to fall. It steadily increased in volume as I drove back to town, and as the rain got heavier, so the wind got more violent.

The Voyage

The next stage is best told by printing in full the messages sent out by the airship and received at Cardington.

9.21 p.m. (B.S.T.).—

Over London, moderate rain, base of low cloud 1,500 ft.; wind, 240 deg., 25 miles an hour; course now set for Paris. Intend to proceed *via* Paris, Tours, Toulouse and Narbonne.

10.47 p.m.—At 10.35

crossing coast in vicinity of Hastings. It is raining hard, and there is a strong south-westerly wind. Cloud base is at 1,500 ft. After a good getaway from the mooring tower at 7.30, ship circled Bedford before setting course. Course was set for London at 7.54. Engines running well at cruising speed gave 54.2 knots (62 miles). Reached London at 9 o'clock, and then set course for Paris, gradually increasing height, so as to avoid high land. Ship is behaving well generally, and we have already begun to recover water ballast.

12.36 a.m.—Crossing French coast at Pointe de St. Quentin; wind 245 deg. true, 35 miles an hour.

1 a.m.—15 miles south-west of Abbeville, course and speed made good from 7.30 various, 33 knots (38 miles) an hour; altimeter height, 1,500 ft.; air temperature, 51 degrees; intermittent rain; cloud nimbus at 50 ft.; conditions since departure similar; temperature uniform. After an excellent supper our distinguished passengers smoked a final cigar, and having sighted the French coast, have now gone to bed to rest after the excitement of their leave-takings. All essential services are functioning satisfactorily. The crew have settled down to watch-keeping routine.

The airship also talked to Croydon, and at 1.8 a.m. sent to Croydon the message:—"Thanks for valuable assistance; will not require you further to-night." At 1.23 Croydon replied "Am remaining on watch." Then there was a series of short messages between the ship and Cardington, to test the strength of the wireless signals, which were quite strong both ways and showed no sign of atmospheric disturbance. At 2.44 (B.S.T.) Croydon overheard the airship asking Le Bourget for her position. This was given by Le Bourget as 1 km. to the north of Beauvais aerodrome.

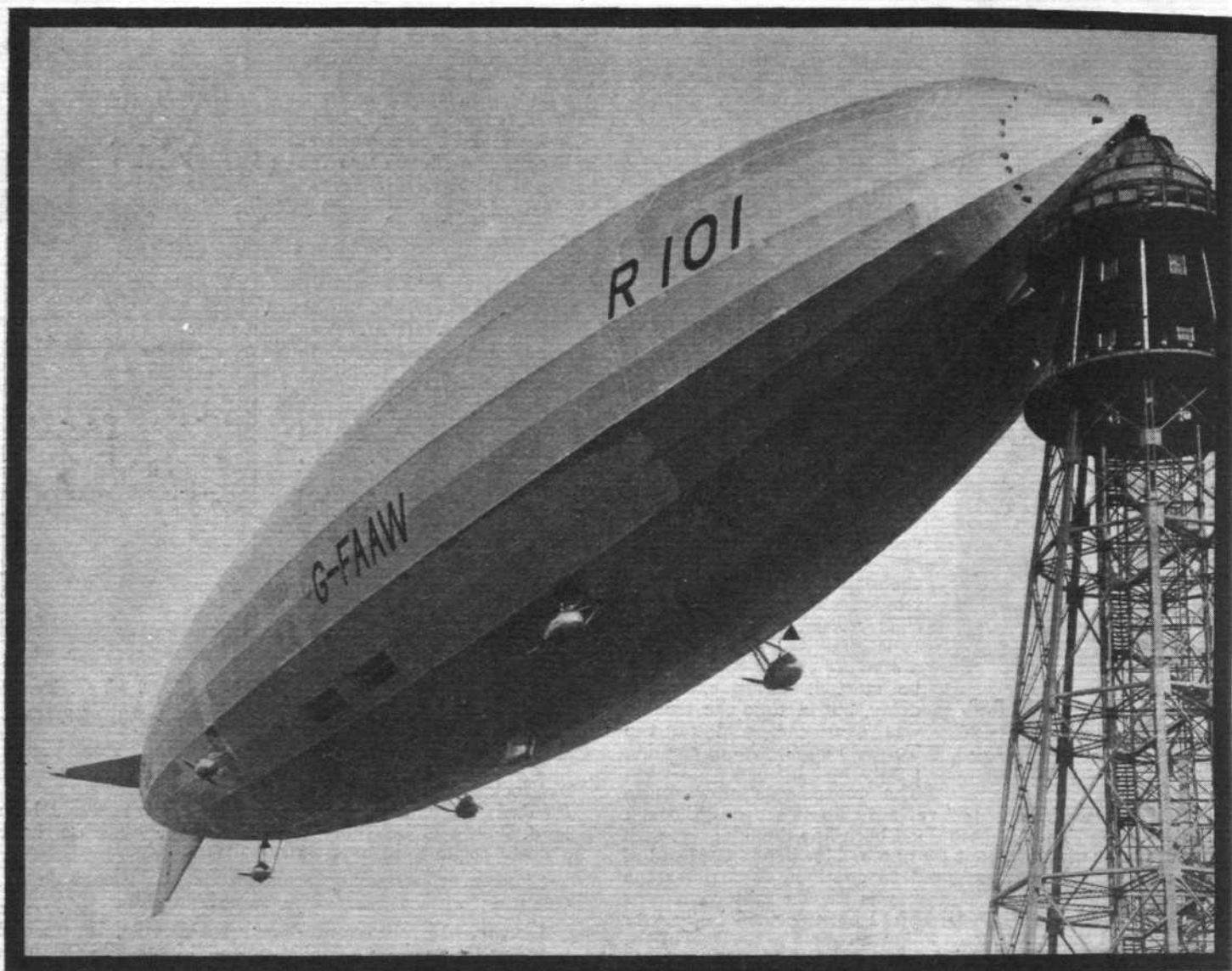
Then at 3.16 (B.S.T.) Le Bourget broadcast the message:—"G.F.A.A.W. a *pris feu*." The watches of some of the crew stopped at 2.10. Evidently they had been put on to Greenwich time. Between 1 a.m. and 3.10 a.m. (both B.S.T.) R 101 had travelled only 36 miles. The wind had kept pretty steady from London to Pointe de St. Quentin at S.S.W., which was very nearly abeam. It increased in strength from 25 m.p.h. over London to 35 m.p.h. when she crossed the French coast, and doubtless went on increasing in the two and a-half hours. When she was near Abbeville she was flying at 1,500 with nimbus clouds well below her. When just north of Beauvais she was not sure of her position, which suggests that there was still cloud below her.



Flight Lieut. H. C. Irwin, A.F.C., Captain of R 101.
(FLIGHT Photo.)



Lieut. Comdr. N. G. Atherstone, A.F.C., R.N. (Retd.), First Officer. (FLIGHT Photo.)



R 101 on Saturday afternoon. (FLIGHT Photo.)

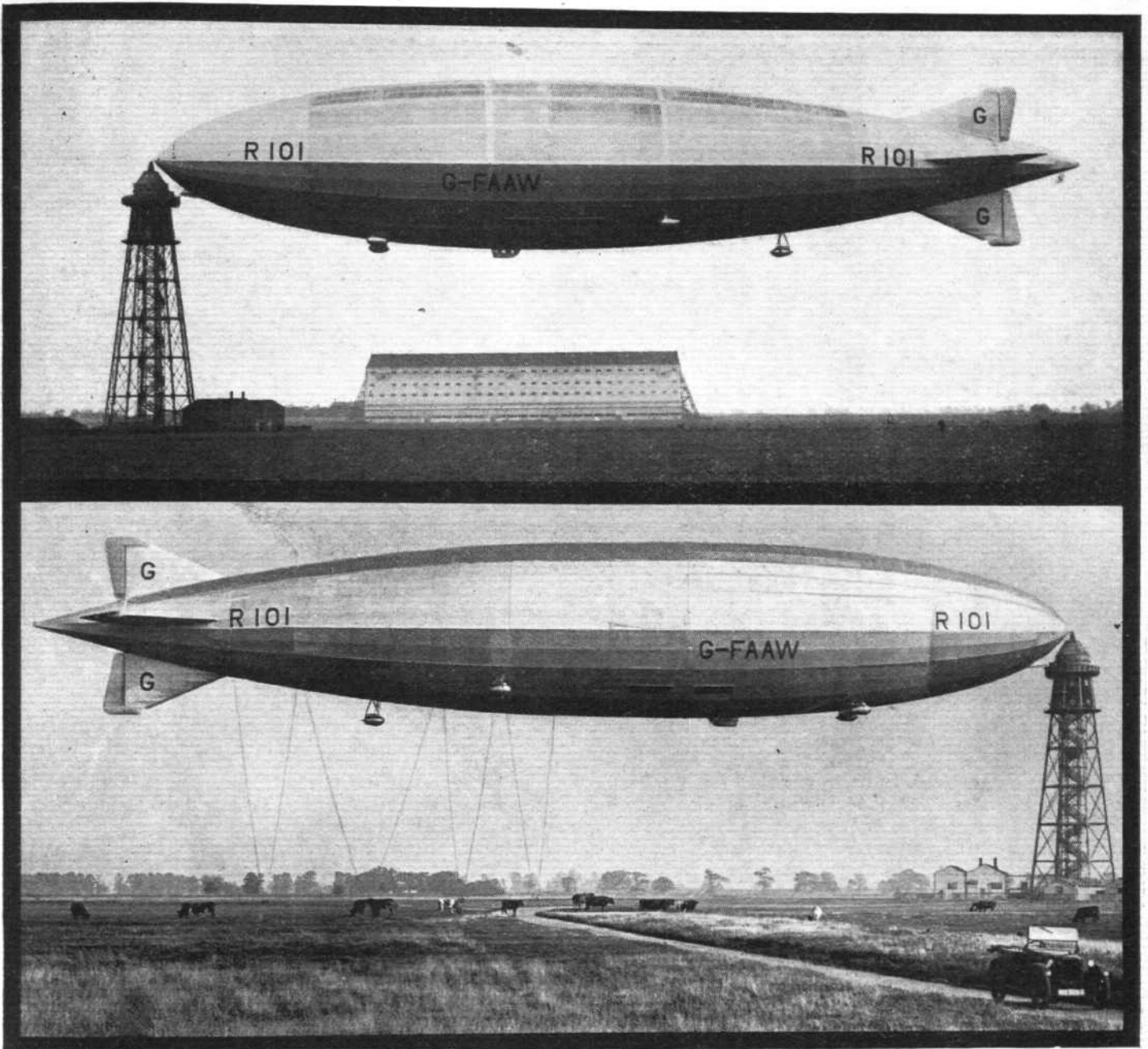
The rest of the story we must try to reconstruct from the stories of survivors. It is not an easy matter, as many accounts have reached this country and they do not all tally. The most circumstantial, and in our opinion the most credible, was given by Mr. A. J. Leech, foreman engineer, who was not a member of the crew but was on board as an official of the Royal Airship Works. The account which we are using was given by Mr. Leech to a well-known civilian pilot who had flown over to Beauvais. As the airship approached Beauvais the rain became "terrific." Mr. Leech, who was in the control car, denies that the weight of rain brought the airship down too low. She was flying at the height ordered, which, perhaps, was the same as at 1 a.m. (B.S.T.), namely, 1,500 ft. Flight-Lieut. Irwin was taking the watch, as one would expect of the captain on the first night with unfavourable weather expected. Sqdn.-Ldr. Johnston, the navigator, was also on duty, probably in the chart room, which was just above and aft of the control car. We have no information as to whether Major Scott was up or in bed. Reuter has stated that there was a watch of 12 men on duty. We know that at 2.44 Irwin asked for his position. There were probably still clouds below him. The captain seems to have been uneasy, for Leech says that he slowed down the engines to consider the position. We may wonder did Irwin have any idea that he was in a particularly difficult bit of flying country. Four miles to the south-west of the spot where the crash occurred there is a hill rising to 850 ft., and when a south-west wind is blowing the downward current of air off that hill is exceedingly strong. More than one aeroplane has come to grief there, and the pilots of Imperial Airways sometimes have to use all their engine power to get out of this valley or depression.

The Crash

Irwin may have come down a bit lower to have a look at the ground, though we have no evidence to that effect. Leech is reported to have said that there had been increasing difficulty in working the controls, but we are not clear as to

whether that meant physical difficulty in moving them or that the ship was unduly slow in answering. Then a few minutes past 3 a.m. Irwin held a conference, presumably with Johnston, in the chart room, and it was decided not to arouse the rest of the crew or the passengers. That showed uneasiness but not despair. Then the order was given for the engines to be put to full power in order to get higher by dynamic lift. This is not corroborated by the two engineers, Bell and Binks, who escaped practically unharmed from the rear central engine car. They said that the last order was to slow the engines down, but an order for full power seems much more probable. It was too late. The airship, it appears certain, had already been caught in the fatal downward current. The next thing which Leech knew was that the floor of the control car came up at him. A second later everything went up in flames. He has no clear idea of how he got out, but he has a recollection of Irwin standing at his post giving orders. After he had fallen clear on the wet grass, Leech says that he still saw Irwin standing at his post, but it was impossible for him to get at him to help him. Possibly, Irwin's last act was to release the emergency water ballast from all the tanks in a despairing but vain effort to save his ship. We know that water from a tank fell on to the rear engine car and helped to save Bell and Binks by drenching them to the skin. Other accounts tell of the airship diving steeply once or twice, but righting herself; until the second or third dive drove her nose against the ground. This tallies with the theory of downward currents of air. The two forward wing engine cars were driven up into the hydrogen bags, and doubtless it was they which set the gas alight—at any rate, there is no need to look for other causes, for after the crash to the ground a fire was inevitable.

A wireless operator, Mr. Disley, escaped from the sleeping quarters of the crew, which were immediately behind the chart room and the captain's cabin on the lower deck. Two riggers, Radcliffe and Church, got out somehow, both very badly burnt, and both afterwards died in hospital.



The upper photograph shows R 101 before the insertion of the new bay, and the lower view shows her after she had been lengthened. (FLIGHT Photo.)

Bell and Binks both escaped from the rear engine car. Bell had just been relieved by Binks, but waited a few moments before climbing up the ladder into the hull, and so saved his life. Two other engineers, Cook and Savory, also escaped—we imagine because they were in the two rear wing engine cars. All the rest of the company perished, and the only comfort we can find is that their end must have been mercifully quick. There was no long-drawn-out agony such as has made some railway accidents so particularly horrible.

We have mentioned the heroism of Irwin, the captain, in sticking to his post and dying there, when, perhaps, he might have had a chance to save his life. We must also record the pluck of Leech, Bell and Binks in doing their best to get others out of the wreckage. Disley, too, showed remarkable devotion to duty in making his way to a telephone and informing the Air Ministry at 4 a.m. (G.M.T.) of the disaster.

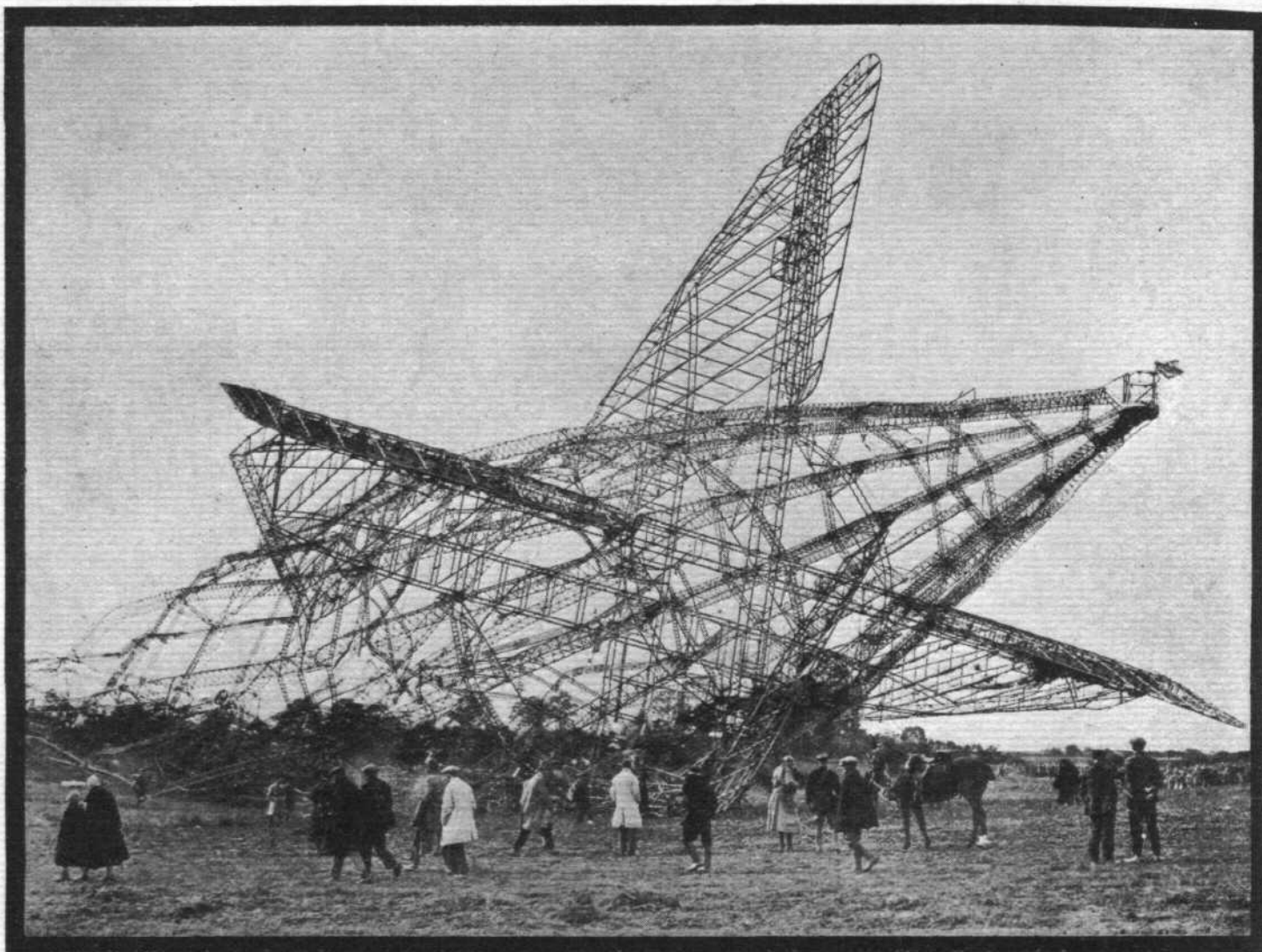
The photographs show that the framework at the nose is badly buckled, as one would expect. The structure is most completely wrecked at the bay where the passenger coach was slung. This would be due partly to the weight of the coach and partly to that bay apparently having struck a bank. The rear portion of the hull is wonderfully little damaged. The fabric remains unburnt on the lower surfaces of the two elevators. Both the stainless steel and the duralumin seem to have withstood the terrific heat in a most remarkable manner.

On receipt of the news, Air Chief Marshal Sir John Salmond, Chief of the Air Staff, accompanied by Air Commodore F. V. Holt, Director of Technical Development, flew across to Beauvais in a R.A.F. aeroplane. Major Cooper, Inspector

of Accidents, Professor Bairstow, Sqdn.-Ldr. Booth, captain of R 100, and other experts, also flew across in a civil aeroplane. Sir John Salmond flew back the same evening, but Air Commodore Holt and the others remained at Beauvais to collect evidence.

As soon as news of the disaster had time to spread, the French authorities took every possible step to help. Gendarmes and soldiers and local authorities set to work to extricate the bodies, and they also protected the wreckage from souvenir-hunters. M. Laurent Eynac, the Air Minister, himself arrived on the scene at the earliest moment, and spoke to the survivors in hospital. The Maires and people of Beauvais and Allonne also did everything in their power, and, in brief, France and her people omitted nothing which could have been done to show their sympathy with Great Britain in her grievous loss. Our gratitude to France will not fade.

The bodies were mostly unrecognisable. On Tuesday they were brought to Boulogne, the French according them full military honours. There they were taken on board H.M.S. *Tempest*, which crossed to Dover, and they arrived at Victoria in the early hours of Wednesday morning. The Prime Minister was one of the huge crowd which waited to see them arrive. They were then removed in R.A.F. lorries to the mortuary in Horseferry Road. On Friday there will be a memorial service at St. Paul's Cathedral, at which the King will be represented by the Prince of Wales. The coffins will lie in state in Westminster Hall that day from 8 a.m. to 10 p.m. On Saturday they will be taken by train from St. Pancras to Cardington, where they will be buried in one



The tail of R101 after the accident. There is no appearance of any structural defect, and the steel and duralumin generally have stood up to the heat remarkably well. ("Daily Mirror" Photo.)

common grave. The noble Secretary of State will lie there side by side with the ordinary riggers and engineers, all equally mourned. In due course a memorial will be erected over the grave.

F. A. de V. R.

Committee of Enquiry

An Anglo-French commission of experts to enquire into the cause of the disaster has been constituted as follows:—Major Cooper (Inspector of Accidents, Air Ministry), Sqdn.-Ldr. Booth, Major Jones (Private Secretary to the late Sir Sefton Brancker), Mr. F. L. Wade, Mr. E. F. Randle, Lieut. A. F. Gerrish, Professor Bairstow, Mr. T. Collins, M. Brunat, M. Jouglard, Capitaine Mercier, Lieut. Guillot, Flight-Lieut. Montgomerie-Moore (interpreter).

The Survivors

Mr. H. J. Leech (Foreman Engineer, Royal Airship Works); Mr. A. V. Bell, Engineer; Mr. J. H. Binks, Engineer; Mr. A. J. Cook, Engineer; Mr. A. Disley, W/T Operator; Mr. V. Savory, Engineer.

The Dead

Brigadier General The Rt. Hon. Lord THOMSON, P.C., C.B.E., D.S.O., Secretary of State for Air; Air Vice Marshal Sir W. SEFTON BRANCKER, K.C.B., A.F.C., Director of Civil Aviation; W/Cdr. R. B. B. COLMORE, O.B.E., R.A.F., Director of Airship Development; Lt.-Col. V. C. RICHMOND, Assistant Director of Airship Development (Tech.); Major G. H. SCOTT, C.B.E., A.F.C., Assistant Director of Airship Development (Flying); Major P. BISHOP, O.B.E., Chief Inspector, Aeronautical Inspection Department, Air Ministry; S/Ldr. F. M. ROPE, R.A.F., (Attached to Directorate of Airship Development); Flight Lieutenant H. C. IRWIN, A.F.C., R.A.F., Captain of the Airship; S/Ldr. E. L. JOHNSTON, A.F.C., R.A.F.O., Navigator; Lieut. Commander N. G. ATHERSTONE, A.F.C. (R.N. Ret.), 1st Officer; F/O M. H. STEFF, R.A.F., 2nd Officer; M. A. GIBLETT, M.Sc. Superintendent of Airship Division, Meteorological Office; A. BUSHFIELD, Aeronautical Inspection Department; S/Ldr.

W. H. L. O'NEILL, M.C., R.A.F. representing the Secretary of State for India; S/Ldr. W. PALSTRA, M.C., Royal Australian Air Force; Mr. J. BUCK, Attendant to Secretary of State for Air.

AIRSHIP CREW.

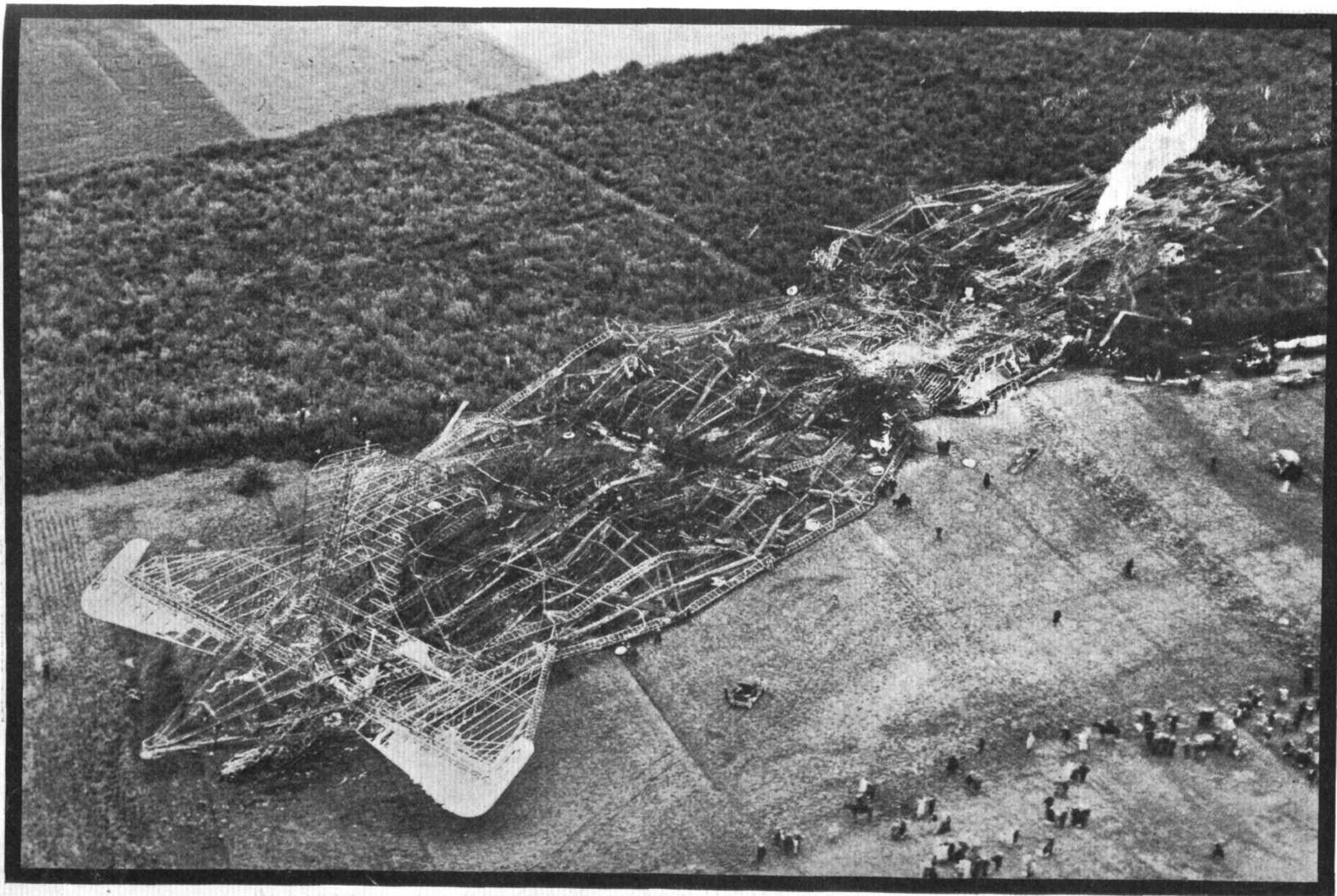
G. K. ATKINS, W/T Operator; R. BLAKE, Engineer; C. A. BURTON, Engineer; S. CHURCH, Rigger; F. ELLIOTT, W/T Operator; C. J. FERGUSON, Engineer; H. E. FORD, Rigger; P. A. FOSTER, Rigger; W. R. GENT, A.F.M., 1st Engineer, R101; E. A. GRAHAM, Cook; A. C. HASTING, Engineer; F. HODNETT, Assistant Steward; G. W. HUNT, A.F.M., Chief Coxswain; S. T. KEELEY, Chief W/T Operator; T. A. A. KEY, Charge-hand Engineer; W. H. KING, Engineer; M. F. LITTLEKITT, Engineer; C. H. MASON, Assistant Coxswain; J. W. MEGGINSON, Galley Boy; W. MOULE, Engineer; A. W. J. NORCOTT, Rigger; L. F. OUGHTON, Assistant Coxswain; W. A. POTTER, Assistant Chief Coxswain; W. G. RADCLIFFE, Rigger; M. G. RAMPTON, Rigger; A. J. RICHARDSON, Rigger; E. G. RUDD, Rigger; A. H. SAVIDGE, Chief Steward; S. E. SCOTT, Charge-hand Engineer; G. W. SHORT, Charge-hand Engineer; C. E. TAYLOR, Rigger; A. H. WATKINS, Engineer.

H.M. The King's Message

H.M. the King sent the following message on Sunday to the Prime Minister:—

"I am horrified to hear of this national disaster which has befallen Airship R 101, and the consequent serious loss of life, including that of Lord Thomson, my Air Minister. The Queen and I sympathise deeply with the relatives and friends of those who have perished in the service of their country and also with the injured survivors.—
GEORGE R.I."

Thousands of messages of sympathy have poured in from all parts of the world. In brief we may say that the head of nearly every monarchy and every republic in the civilised world has sent a personal message of sympathy to our King.



GENERAL AERIAL VIEW OF THE WRECKAGE OF RIO: It will be noticed that the frame is lying in a straight line. The nose has been crushed by impact with the ground, and the most complete destruction has taken place in the bay which supported the passenger coach and the control car. (Photo. "Central News.")

The Governors and Premiers of the Dominions have done likewise. The Royal Aero Club and the Royal Aeronautical Society have received messages from practically every corresponding body in foreign countries. It would be impossible for us to reproduce even a selection from the expressions of world-wide sympathy. We may, however, single out for special mention that from Dr. Hugo Eckener, President of the Zeppelin Corporation, who has intimated his intention of coming over to England specially, in order to be present at the memorial service.

Careers of those who Died

Lord Thomson of Cardington, P.C., C.B.E., D.S.O., was the son of Major-General D. Thomson, and was born on April 13, 1875. He was educated at Cheltenham and Woolwich, and was gazetted to the Royal Engineers in 1894. He saw service in Mashonaland and South Africa and was pro-



The dining-room of R 101.
(FLIGHT Photo.)

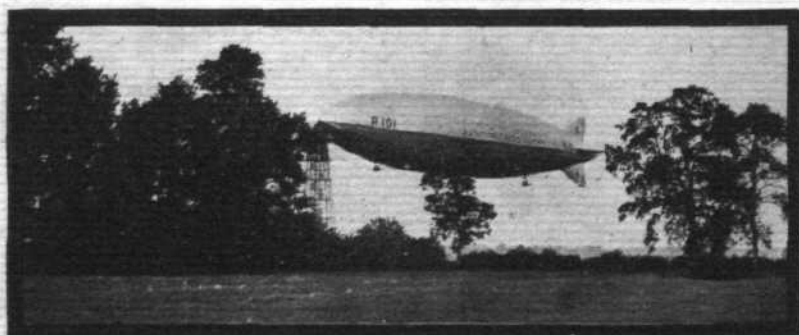


The lounge of the R 101. (FLIGHT Photo.)

moted brevet major for his services. He also served in West Africa, and later went as British military representative to the Balkan wars. In 1914 he was on the staff of Sir Douglas Haig in France, but next year became military attaché in Rumania. After the war, he retired and entered politics, joining the Labour Party. In 1923 he became Air Minister in Mr. MacDonald's first Cabinet, and was raised to

the peerage. After the fall of that Ministry, Lord Thomson became chairman of the Royal Aero Club. He resumed his post at the Air Ministry after the last general election. Not much of a party man, his knowledge of foreign affairs was of great service to the Cabinet, but mostly he confined his energies to his own department, which he administered with energy, ability and foresight. He was from the first a great champion of the airship experiment, and took his title from Cardington. Lord Thomson was respected by all, and beloved by all those who knew him.

Air Vice-Marshal Sir Sefton Brancker, K.C.B., A.F.C., was born on March 22, 1877, the eldest son of the late Col. W. G. Brancker. He was educated at Bedford and Woolwich, and was commissioned in the Royal Artillery in 1896. He served in the South African war and was wounded. After that war, he served in India and it was there that he began to fly. In the early days of the great war he was Deputy Director of Military Aeronautics at the War Office. In 1917 he commanded the R.F.C. in the Middle East, but early in 1918 he joined the Air Council, later the Air Ministry, as Master General of Personnel. After the war he retired as Major-
(Concluded on page 1126)



PRIVATE FLYING AND CLUB NEWS

SURREY AERO CLUB OPENING

THE SURREY Aero Club held their opening meeting at the Gatwick Aerodrome on Saturday last, October 4.

The meeting was really an exceptionally good example of what can be accomplished with aircraft in the way of travelling about the country under the weather conditions so prevalent here. The morning was very thick all round Croydon and the clouds were down on the hills above Reigate, in fact, so bad was it that at least one air-liner turned back for a spell after setting out down the Redhill valley and then waited until it cleared a little. Notwithstanding these conditions 28 visiting aircraft had arrived at Gatwick by 2 p.m., with the result that the meeting was entirely successful. Moreover, by 2.30 p.m. the weather just around the aerodrome cleared and what had promised to be a dull, wet and dismal day turned into a comparatively warm and cheerful one. So much for the weather, as regards the general public, however, far less gratitude can be shown them for the part in the afternoon's entertainment. The local inhabitants of that district are evidently fully determined to get their fill of flying without assisting the club or those who provided that flying, in any way whatsoever, with the result that we saw a large crowd fighting for front hedgerow-seats and pushing their way through the hedges on the further sides of the aerodrome, while only a small proportion paid the modest 1s. 3d. asked for admission to the cheap enclosure. This is the sort of situation which local authority should have power to deal with, but we understand that the police said they were powerless and could do nothing at all. We should have thought that on the score of hindering the traffic alone the majority of the crowd could have been moved on, but the fact remains that they weren't and the club suffered accordingly.

The club has only recently been started, and the instruction is being catered for by Mr. Waters, of the Home Counties Aircraft Co., which operates the aerodrome. Mr. Waters used to carry on his business at Penshurst, where he made his debut into the aviation world, but has recently acquired the aerodrome at Gatwick and got this club into working order. The situation is excellent for a club and the surrounding district should hold many who will take up flying now that it has been brought to their door. It is hoped that arrangements will shortly be made whereby the club will acquire the use of a delightful old house which adjoins the property as a club-house; this should give them one of

the most attractive club-houses of all the smaller provincial clubs.

The programme on Saturday started with a parade and fly past. This consisted of one of the best shows of machines we have seen at such a meeting. It was led by Capt. Stack in his Moth, which, of course, as most people now know is a flying showroom for Smith's Aircraft Instruments, and he



VISITORS TO GATWICK: On the left is Mr. Thorn and next to him are Mr. Olney and Capt. Stack—all keen advocates of the Hermes engine. Then comes Mr. Jeffs and Capt. Lawford, both having a day away from Croydon. (FLIGHT Photo.)

was followed by Mr. J. Youell in a Desoutter II (Gipsy III); Mr. R. G. Murray, Moth (Gipsy I); Mr. Waters, Bluebird (Gipsy I); Mr. R. Bentley, of Shell-Mex, Ltd., Puss-Moth (Gipsy III); Mr. S. Thorn, of Cirrus Engines, Ltd., Avian (Hermes); Mr. B. Allen, of Henlys, Avian (Hermes); Mr. Andrews, of Spartan Aircraft Co., Spartan (Hermes); Mr. O. Tapper, of the A.A., Moth (Gipsy I); Col. L. Strange, Spartan 3 seater (Gipsy II).

Following this came the usual displays of aerobatics by Capt. Stack, Mr. Thorn, Mr. Bentley, Mr. Murray, Mr. Stace and Flt.-Lt. Armour. Each pilot has his own particular style, so that the spectators were given one of the most varied



A MODERN TYPE: The Segrave-Meteor, which will shortly be marketed both here and on the Continent on a large scale. (FLIGHT Photo.)

exhibitions they could wish for and had the opportunity of seeing every type of aerobatics perfectly done. Interspersed between these displays were other events, which included bombing a tractor by Capt. Stack and Mr. Thorn—in this both pilots secured a direct hit; balloon bursting by Mr. E. C. Brown, of W. B. Dick & Co., Ltd.; slow flying on a Klemm by Mr. Rogers and a humorous event, in which Mr. Waters emulated a drunken navvy, who reeled out to a Moth with the engine ticking over and on taking off proceeded to make some hair-raising attempts at landing before actually doing so and finally charging right up to the enclosure before slewing round, causing the control officer to palpitate considerably.

The final event was a drop by Mr. J. Tranum, with his Russell Lobe Parachute. This he made from the Spartan 3-seater, piloted by Col. Strange at about 2,000 ft. and by careful and well judged spilling alighted right in the centre of the aerodrome.

Just about this time the Segrave-Meteor (two Gipsy III's) arrived with Mr. Pitt of the Aircraft Investment Corporation, flown by Flt. Lt. Armour, whose landing showed that when necessary there is no great difficulty in landing this machine quite slowly. We understand that the latest metal version is now nearly ready for its tests, and it is this version which will be marketed over here and on the continent by the A.I.C.

The aerodrome is 90 acres in extent and the surface is fairly good, so that it should make an admirable country flying club. There is already a small hangar and petrol is obtainable from two pumps—it is somewhat unique that Redline seems to have the monopoly here instead of having a representative of each company, as is usually the case—while the existing club-house, though small, will serve well until arrangements are made for the new one. On Saturday every comfort was provided for the visitors, with ample lunch accommodation and an unusually good broadcasting installation. This was put up by the Mullard people, and as we have mentioned before gives a much better result for these meetings than the trumpet type, the general excellence was undoubtedly helped by the clear voice of Mr. Brown, who is now becoming quite an institution at the microphone. In the evening there was an enjoyable dance to finish off with at the Timberham Hotel, and an astonishing number of guests forgot to put their clocks back when finally they did get to bed!

NIGHT FLYING at Heston.—Next spring there will probably be regular opportunities for night flying at Heston Air Park. Until recently it had not been possible for the pilot holding only an "A" licence to fly at night. The applications for flights from all parts of the country were so numerous during the recent demonstration that it has been decided to provide night-flying facilities on one or two nights a week in the spring.

The desire to see London from the air by night has proved an attraction to a large number, as except to Service and professional pilots that experience has not hitherto been available. The extent of the sea of lights is like nothing else as a spectacle, and on a clear night London seems to have no boundaries. Pilots flew to Heston from places as far away as Liverpool and Bristol for the experience. Nearly 80 pilots made night flights in the dual control machines that week, and most of them were surprised to find how easily machines may be landed on a properly lighted aerodrome.

The result has been a demand for regular facilities and a number of private owners have decided to have their aeroplanes fitted with navigation lights. Airwork, Ltd., have, therefore, arranged to have night flying at least once a week next year.

Heston has two aeroplanes fitted with lights, but for the private owner, the fitting of these lights is a costly matter, as the only type of navigation lights approved by the Airworthiness Inspection Department of the Air Ministry involves the use of lamps, which are quite unduly expensive, while wiring the wings after the machine has been finished still further adds to the cost. No doubt we shall in time have manufacturers who are far-seeing and business-like enough to spend a little extra in having their aircraft wired during construction, but until they do so this wiring is bound to be beyond the pocket of many private owners.



A BIRD'S-EYE VIEW: An unusual view which Mr. John Tranum presented to our photograph as he dived at Gatwick aerodrome from Col. Strange's Spartan last Saturday. (FLIGHT Photo.)

CINQUE PORTS FLYING CLUB.—For the six months ending September 30, 1930, the three club aircraft between them flew 868 hr. 25 min. Mr. K. K. Brown, as Instructor, flew 470 hr. in the six months, and the "A" licence pilots and soloists under instruction flew just under 400 hr. between them.

Receipts from the sale of flying tickets to members amounted to over £1,350.

Mr. Brown trained twenty-four new pilots in the six months, an average output of one a week. This represents the maximum efficiency yet attained by this club.

Private owner members are informed that the facilities for free housing and landing at Lympne only operate during such time as the club is officially open, i.e., between the hours of 10 a.m. and sunset. Private owners landing their aircraft at Lympne at other times, must house their aircraft in the Government hangar, and pay the Air Ministry's fee.

It has been arranged that for the benefit of private owners, a club employee shall be on duty between 10 a.m. and sunset on the club's weekly off day, but, of course, the club room and bar will be shut, and no flying may take place on club aircraft.

In view of the poor support which has been afforded to the Ashwell-Cooke Cup Competition, and the serious dislocation of club flying occasioned thereby, it has been decided that this competition will not be flown again until the first Sunday in May, 1931.

BROOKLANDS School of Flying.—The flying hours during the past week amounted to 35. Instruction was curtailed during this period by wind and rain. Messrs. Nelson and Willox qualified for the "A" Licence.

Many well-known private owners arrived by air on Saturday, October 4, to witness the 500-mile race.

The Segrave Meteor paid a visit, piloted by Flt. Lt. Armour.

For the benefit of the pupils at the School, a gymnasium is in course of construction, also a squash court. We hope pupils will take advantage of these facilities for keeping fit, remembering that the physical fitness of a pilot is reflected on his or her flying.

The Brooklands Aero Club is going very strong at the moment. Their one machine is in great demand by the members and can be seen flying practically all and every day.

NATIONAL Flying Services, Ltd., report a trading loss of £39,140 for the 11 months ended July 31, 1930.

To this is added £10,423 excess of expenditure over income before the date of opening Hanworth Park, making a total debit of £49,563.

The prospectus estimated a net profit of £32,000 "for the first year in which the company is in full operation on its initial programme."

No explanation of the loss is given, but a statement on the position will be made by the Chairman at the meeting on October 14.



GLIDING

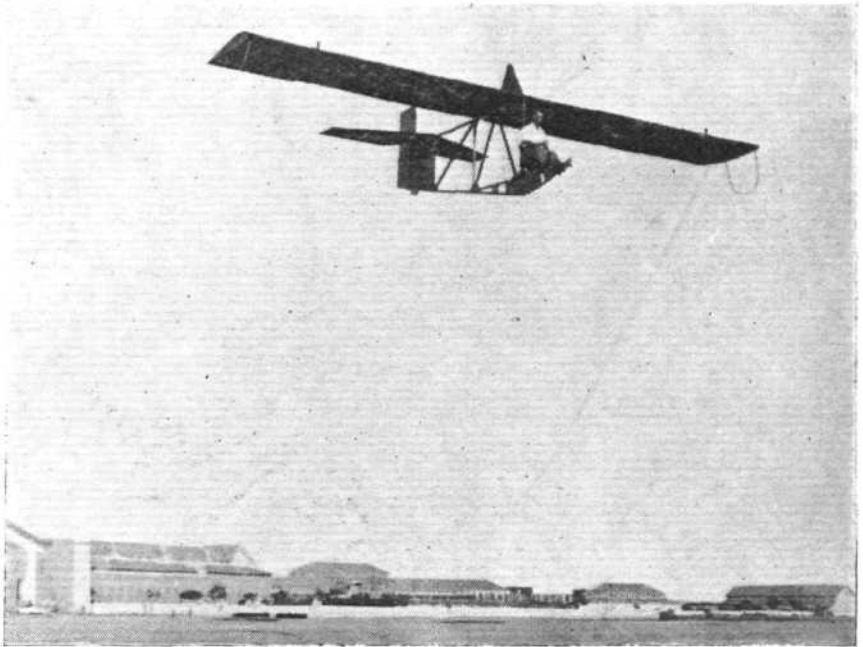


A GLIDING and Light Aeroplane Meeting is being held to celebrate the opening of the Wiltshire Light Aeroplane and Glider Club, at "The White Horse" Hill, Yatesbury, on Saturday, October 11, and Monday, October 13, from 10 a.m. to 5 p.m.

Yatesbury is half-way between Marlborough and Chippenham, on the main Bath Road. Those arriving by air will find hangar accommodation at the old Air Force Aerodrome at Yatesbury. This aerodrome lies along the road, and the best land mark from the air is the White Horse on the downs, just the opposite side of the road.

A good attendance of gliders has been guaranteed. Among those who will give demonstrations will be the Master of Sempill, Captain Latimer Needham, Mr. Low Wyld, and it is hoped that Herr Kronfeld will be present.

The gliding site is ideal. It is situated in perfect country, and we feel sure that those who attend this meeting will have a very interesting and enjoyable two days. There will be a car park for those arriving by car and the gliding site is only a few hundred yards from the road.



AN ASSOCIATED GLIDER CLUB of Queensland has been formed. This will work on a large number of very small clubs with one central organisation. This method has been found necessary owing to the widely spread population. At present these small clubs mostly have their own training machine but will get more advanced types as their members increase in experience. Although the Association was only formed in May there are already ten associated clubs, and twenty more are in the process of formation. Owing to the prohibitive cost of local built machines and the cost of freight on southern machines the majority of clubs are building their own, and this has served to create a considerable amount of keenness among the individual clubs whose constructional departments vie with each other in the finish of their respective work.

The Association has arranged for the bulk purchase of material which effects a considerable saving of time and money to the clubs.

The weather conditions are particularly favourable, and it is quite usual for a steady wind to blow day and night for over a week, and in the hilly districts duration records should prove a simple matter.

THE DICKSON GLIDER.—Constructors of the Dickson glider, plans for which are obtainable from this office,

The Dickson type glider, designed, built and flown by airmen of the R.A.F. Depot (Karachi). L.A/C. Eville manages 40 ft. from level aerodrome.

will be interested to hear that this glider has proved itself to be exceptionally good in high altitudes. The Germiston Flying Club have built one, and although a great deal of scepticism was evident in the criticisms offered by the local "experts," who averred that no glider would function satisfactorily in the district with the altitude over 6,000 ft. above sea level, the first trials fully bore out their faith in the design and many good flights have been made, and this in spite of the fact that flying conditions were bad even for that district. There was little wind and the atmosphere was super-heated!

There are now many gliders of this type being built all over the world, and it has proved admirable for training purposes. Further details of the plans are given in our advertisement columns.

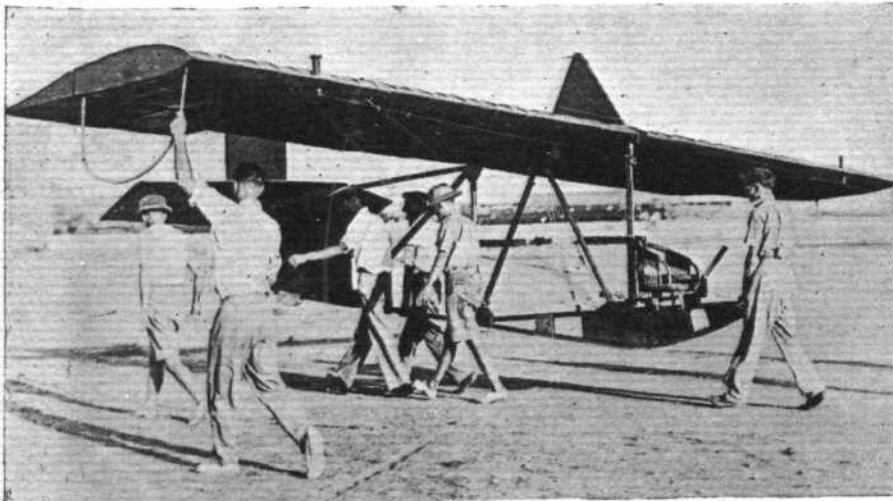
THE ABERGAVENNY and District Gliding Club is in the course of formation, and those interested should apply to the Hon. Sec., at "Trossachs," Park Crescent, Abergavenny, Monmouthshire.

GLIDING at Karachi.—A glider club has been formed by the officers and men of the Air Force Depot at Karachi, which has manufactured its own glider and has already made several flights. This is the Dickson type but has been made heavier and with an R.A.F. 34 wing section.

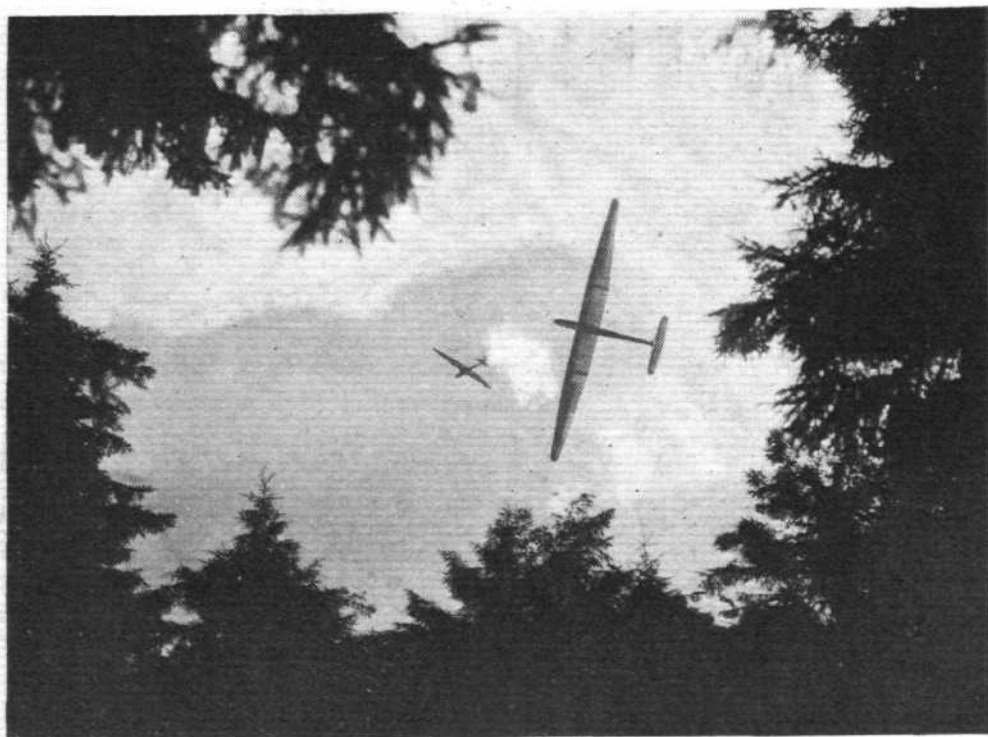
Conditions at Karachi are, however, not too helpful as there are no hills handy to enable a good take-off to be made. However, the Glider Club has been undeterred by this, and every favourable wind has been taken advantage of for flights.

The record height achieved so far in Karachi is 40 ft., and many long flights have been made with continuous experiments, and with the improvements now contemplated the Club expects to be able to accomplish much better flights shortly.

It is clubs like this which have the enterprise and go in them to build their own machines that get by far the most interest out of gliding.



Another view of the Karachi-built glider, which has been called the "Desert Fowl."



At the Wasserkuppe. Gliders seen through the fir trees.

THE LEEDS Gliding Club.—The first meeting of the Leeds Gliding Club was held on Thursday, October 2, when a large company was present. It was decided to go ahead with the purchase of a glider and several of the members are looking out for suitable sites. It was decided to use British made machines only, with a view of helping the movement in this country as much as possible. Two members who have large flying experience have agreed to become the club's instructors.

The next meeting has been fixed for Monday, October 13. The subscription is £2, entrance fee 5s., and associate members will be enrolled at a special lower rate. The joining of the British Gliding Association is now being considered. The hon. secretary is Gordon Jefferson, 32, Fearnville Grove, Roundhay, Leeds.

THE SAILPLANE Club of T.M.A.C.—From last Sunday's performance at Smallhole, Sussex, it looks as if there will shortly be a crop of "A" licences in the Sailplane Club, for several members made timed flights very close to the required duration, and one member, Mr. Wills, made an actual flight of 37 seconds. Nine members were present and many visitors were again observed on the grounds.

Visitors should motor to Horton Farm, Smallhole, Sussex, and enquire for directions. Smallhole is on the road between Henfield and Shoreham. Applications for particulars of membership to the Hon. Secretary, E. G. Smettem, 2, Wine Office Court, Fleet Street, London, E.C.4.

LUPINO LANE in a Glider.—On Saturday and Sunday last, Lupino Lane took his "No Lady" production team down to Itford, near Lewes, where the London Gliding Club were holding a gliding meeting especially for the film, which includes some comic side-lights on the new sport.

Lupino Lane, for once in a way, allowed someone else to take his place for stunt purposes, and for "double" had Col. the Master of Sempill, who donned Lane's blazer and took off before a battery of cameras and microphones.

The Master of Sempill thoroughly enjoyed his bit of film acting, and continued gliding up and down the valley for nearly twenty minutes.

Early this week, Lane himself will sit at the control of a glider—but at the Shepherd's Bush Studios, where he will make a forced landing in the interior of a hotel via the wall.

After that the hotel will be blown up, and, assuming everyone survives, Lane and his "No Lady" associates will then look forward to becoming perfect gentlemen again.

THE BRIDLINGTON Gliding Club took delivery of a new glider last Wednesday. It was brought up by road from Kent by the chairman (Mr. A. E. Wilkinson) and the instructor (Mr. Dooks).

It is the latest type made by the British Aircraft Company, at Maidstone, Kent, and is a training machine which, by means of an interchangeable fuselage, can be converted into a soaring glider.

The club's headquarters are to be at Fordon, 8 miles from Bridlington.

OXFORD Club Moving to Lambourn.—Rain did not damp the enthusiasm of the Oxford and County Gliding Club members on Sunday, September 28, when thirty practice flights were made near Chislehampton.

Several new members made their first flights.

A new flying ground has now been found on the Berkshire Downs, near Lambourn, and it is hoped to start activities here in the near future.

NORTH STAFFORDSHIRE Gliding Club.—Despite rain and variable wind a very successful

meeting was held at Wetley Common, near Cheadle, on Sunday, October 5. Mr. Coles, the club's instructor, made some highly successful and instructive flights and Mr. Northall gave further evidence of his capabilities. Maiden flights were made by Messrs. Jones, Steele, Teeton and Maynard, which did credit to themselves and their instructor.

Meetings will be held at Wetley Common each Sunday and those interested will be welcomed at the meetings held on Fridays at 8.30 p.m. at the Lecture Hall, Newcastle-under-Lyme. Subscription: Gliding members, 1 guinea entrance fee and two guineas annually. Non-gliding members, one guinea annually.

NORTH KENT Gliding Club.—An interesting lecture on gliding was given by Mr. C. H. Lowe-Wylde, A.R.Ae.S., of the British Aircraft Co., to the members and friends of the club at the Constitutional Club, Bexleyheath, on Monday evening, October 6, which was largely attended by an appreciative audience.

The first flight by the new machine ordered by the club will be on October 19, when Mr. Lowe-Wylde the designer will be demonstrator at the meeting at Itford.

Any further information apply to Mr. Walter T. Davies, Warren House, Bexleyheath, Kent.

AT the conference at Scarborough, on Saturday, October 4. Mr. Gordon England, chairman of the British Gliding Association, deplored the formation of the Northern Gliding Association and said the B.G.A. was already doing as cheaply as possible what that body proposed to do.



The München. A high efficiency glider flown this year at the Wasserkuppe.



AIR TRANSPORT

AN AERIAL FREIGHT-CARRIER FOR GUINEA AIRWAYS

WE have on several occasions referred to the activities of Guinea Airways, Ltd., a concern which has been carrying out extremely successful air transport operations in New Guinea for over two years. During this period the company's machines have carried 3,002 passengers and 1,375 tons of freight.

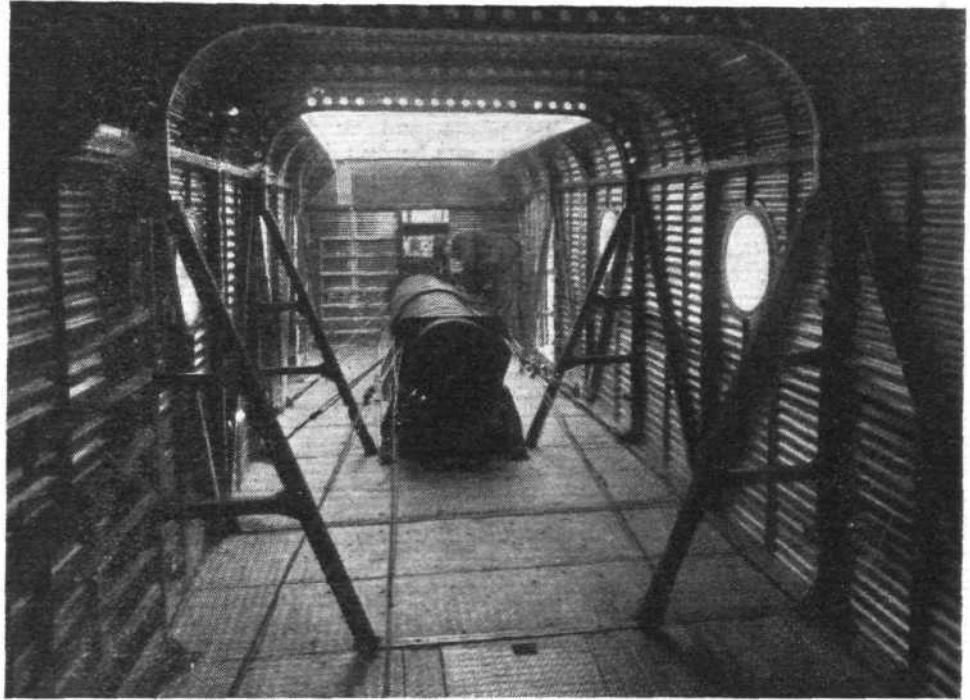
In its last report (for half year ended February 28, 1930) this company declared a nett profit, after allowing for depreciation and deducting all field and overhead expenses, of £22,655—a considerable increase over previous periods. Guinea Airways, therefore, is not only a financial success, but it is claimed that the company's organisation and operations have earned the confidence of the principal local mining and trading concerns.

As a result, contracts for a considerable time ahead have been secured for practically the whole of the freight and passenger requirements of the district, and the company is increasing its fleet of aircraft. By January next, Guinea Airways, Ltd., will have a fleet of five Junkers W.34, and three Junkers G.31 monoplanes, in addition to a few "small fry," including a metal D.H. "Moth," which has already given excellent service.

Just recently the company's chief pilot, Mr. A. S. Cross, came over to Europe in order to inspect and take delivery of the first of three new Junkers G.31 freight-carrying monoplanes from the Junkers Co. at Dessau. These machines have been ordered for the transport, in New Guinea, of power and dredging plants, etc., for Bulolo Gold Dredging,

Ltd., work involving the carriage of about 3,000 tons of heavy machinery and necessary supplies.

The first of these machines, which we show in the accom-



" TONS " OF ROOM : The interior of the Junkers G.31 freight carrier supplied to Guinea Airways, Ltd. Note method of anchoring the cargo, and the large hatch in roof.

panying illustrations, completed its acceptance trial flights last month. The G.31 is a large low-wing cantilever monoplane fitted with three "Jupiter" engines, and having a



A JUNKERS FREIGHT CARRIER FOR NEW GUINEA: A Junkers G.31 monoplane recently supplied to Guinea Airways, Ltd., for the transport of heavy machinery, etc. Standing in front of the machine is Mr. A. S. Cross, the company's Chief Pilot.

arge fuselage giving an exceptionally roomy "hold" for cargo, as may be seen from one of our illustrations. The latter shows the test load in position, consisting of a steel shaft with loose cast-iron disc strung on it, so that the total weight and C.G. could be varied; it was 12 ft. long and weighed 7,040 lb.

With this load, 1½ hours fuel, and a crew of three, the machine climbed to 8,200 ft. in 11 minutes. On a further test at 3,000 ft., with one wing engine shut off the machine climbed 590 ft. in 2 minutes.

Other points to be noted in our illustration of the interior are, the special anchorages for securing heavy cargo, the

extra large loading hatch in the roof, and the chequer plate flooring. Our other illustration shows an exterior view of this machine, *Bulolo I*, with Mr. A. S. Cross standing beside it. The further two sister 'planes will be completed towards the end of this month.

We think the foregoing particulars demonstrate the immense possibilities air transport opens up for the development of mineral resources in inaccessible situations, carrying large scale engineering plants in remote places without first building roads or railways. In any case, Guinea Airways, Ltd., are to be congratulated on their successful enterprise.

COMMERCIAL AVIATION IN SPAIN

THE report on the "Economic Conditions in Spain," just issued by the Department of Overseas Trade, contains the following information regarding commercial aviation in Spain.

Commercial aviation in Spain continues to make satisfactory progress, and the public appears to take increasing advantage of the air services for travelling. This was particularly the case during the Barcelona and Seville Exhibitions, when every seat in the 'planes was booked days beforehand.

The monopoly of the Spanish commercial air services was finally awarded to a company formed by: (a) *Compañía de Tráfico Aéreo* (Loring), (b) *Compañía Iberica Aérea de Transportes*, S.A., (c) *Unión Aérea Española*, S.A. The title of the new company is *Concesionaria de Lineas Aéreas Subvencionadas*, S.A. (C.L.A.S.S.A.), and its capital has been fixed at 9,000,000 pesetas, of which one-third has been taken up by banking interests, one-third by the air-line companies referred to above, and one-third by firms interested in aeroplane manufacture.

The contract entered into by the Government with C.L.A.S.S.A. was approved by Royal decree of November 23, 1929, and its duration is fixed at 12 years. The annual subvention granted by the Government is to be 1,500,000 pesetas.

A Barcelona-Cadiz or Huelva-Canaries Air Mail service was due to start operations in June, 1930. From the Canary Islands the mails will be taken by steamer to Pernambuco and thence to Rio and Buenos Aires by aeroplane.

The formation of a new company is announced, called *Lineas Aéreas Interinsulares Canarias*. This company will run a service between Las Palmas and Santa Cruz de Tenerife. Two Savoia hydroplanes, each with two Isotta-Franchini engines, will be used. The capacity will be 12 passengers and 2 tons of cargo. Two services will run daily in each direction. This service must compete with the nightly service in both directions provided by packet steamer.

Mail-carrying concessions have been granted by the Spanish Government to: (1) the *Compagnie Générale Aeropostale* in respect of Spanish mails destined for France, French Morocco, Algiers, West Africa, and South America; this company has also been nominated by the French Government to work the line between Madrid and Paris under the Franco-Spanish Air Convention; and to (2) *Deutsche Luft*

Hansa in respect of Spanish international correspondence by the Barcelona-Marseilles-Geneva-Basle-Stuttgart service.

The difficulties experienced by the *Sociedad Colón Trans-aérea Española* led to the promulgation by the Spanish Government of a Royal decree on October 16, 1929, which modified very considerably the contract with the company. Essentially they consist in earmarking a total sum of 15,500,000 pesetas in payment of the most important part of the work, which is to be carried out in such a way that the company is to be able to use the Seville Airship station for the purpose of trial trips. At the beginning of the year 1930 the building of the airport had not made much progress, but within a few months the German airship, *Graf Zeppelin*, had utilised Seville as a port of call upon two or three occasions, although the mooring mast has not been completed and it is necessary to use man-power for mooring the airship.

For purposes of aerial navigation Spain has been divided into eight districts, which are as follows: León, Gamonal, Logroño, Prat de Llobregat, Getafe, Tablada, Granada, and Los Alcázares.

The airports of Madrid, Burgos, Seville, and Barcelona will probably be completed in 1931. Preparatory work is being actively carried on in the airports of Valencia, Vigo, and Irún.

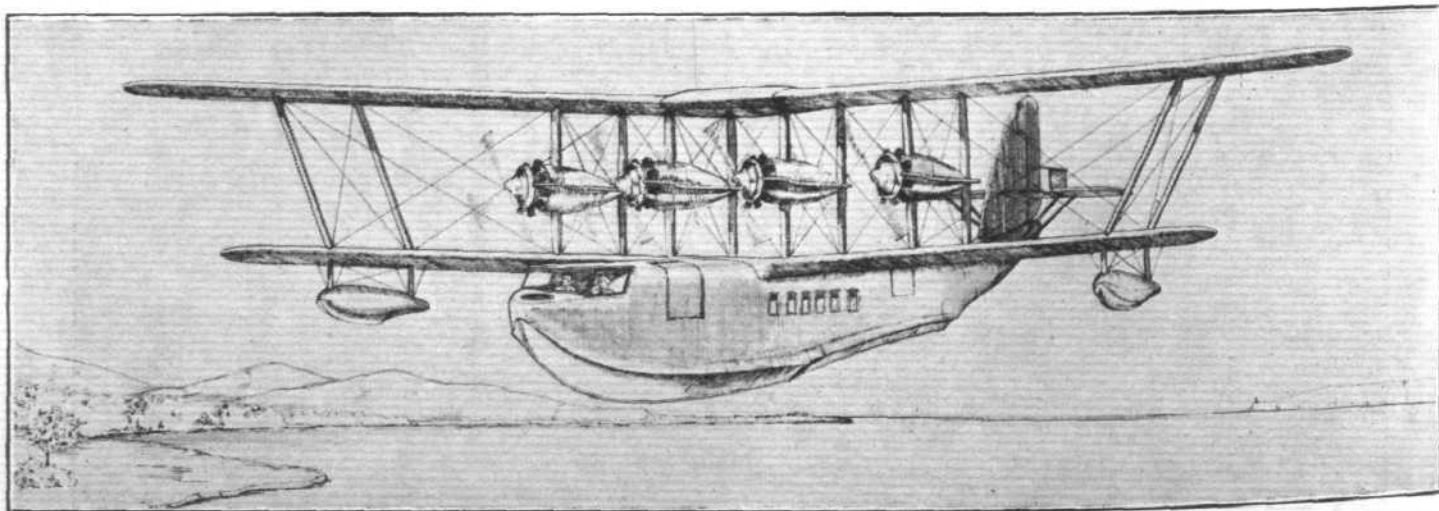
In the Canary Islands the following places have been declared national air ports, subject to the insular Cabildo granting the necessary land: Bay of Los Cristianos, Los Rodeos, Gando.

A Royal order of April 30, 1930, declared open for aerial navigation the maritime ports of Huelva, Santander and Valencia, as far as commercial and private seaplanes are concerned.

An additional protocol to the Aerial Navigation Convention, concluded between Spain and Italy at Santander on August 15, 1927, was signed on October 3, 1928.

Spain and Germany have entered into a special agreement for the establishment of the Madrid-Berlin Air service.

A Royal decree, No. 1,618, of September 29, 1928, created the "Escuela Superior Aerotécnica," the object of which is to provide specialised theoretical and practical training for the direction of all services, whether official or private, connected with the building and navigation of aircraft. The school is open to Spaniards and foreigners alike.



FOR EMPIRE AIR ROUTES: This sketch shows the new 4-engined "Calcutta" which Short Brothers have designed and are building for Imperial Airways, Ltd., who will put it on the Mediterranean section of the air mail route. The engines will be geared "Jupiters."

AIR MAIL FEES

G.P.O. Reply to Sir Eric Geddes

THE General Post Office has made the following reply to the statements of Sir Eric Geddes, reported in our last issue:—

The Post Office has noted with appreciation the public recognition in the speech of Sir Eric Geddes of the "wide and valuable assistance" received in the development of the air mail service. The points to which Sir Eric refers in regard to the fixing of air mail fees are of very slight financial importance and would make no appreciable difference to the amount of the air mail fee or the development of the traffic. In one respect, however, in his comparison between the British and other Post Offices, Sir Eric Geddes appears to be under a misapprehension. The air fee charged to the British public for a letter sent by air mail to India is 5d. a half-ounce. This is substantially lower than the rates charged by other European Administrations using the service, and whose costs for conveyance are in no case greater than those of the British Post Office; e.g., the minimum air fee is 10d. in France, 7d. in Germany, 7½d. in Holland, and 1s. 7½d. in Italy.

The difference is, however, far more striking when comparison is made with other comparable services. In the case of the French service to South America, the distance covered is approximately the same as that between Great Britain and India, but the surcharge which has to be made on a letter (which represents simply the actual cost of conveyance paid out by the Post Office) is 4s. 2d. a half-ounce, or exactly 10 times the Indian mail surcharge. In the case of the services run by the United States to countries in South America, the surcharges are from three to five times the rates charged to India.

The figures for the increase in freight and mails given in Sir Eric Geddes's speech—namely, from 218,000 to 377,000 ton-miles, or 73 per cent., in the year, indicate that the service is not cramped by excessive charges; in fact, the volume of air mail carried by the Indian mail service is, with the exception of the interior services of the United States, where conditions are hardly comparable, in excess of that carried on any long-distance service in the world.

U.S. Transcontinental Air Mails

A NEW company called Transcontinental and Western Air Co., Incorp., formed by Transcontinental Air Transport, the Maddox Air Lines, and Western Air Express, which were jointly awarded the contract for carrying mails across the

States, will operate a 36-hour passenger, mail and express air service between New York, Los Angeles, and San Francisco. The planes will fly by day, with a stop overnight at Kansas City, via Philadelphia, Pittsburgh, Columbus, Indianapolis, St. Louis, Wichita, Amarillo and Albuquerque.

CROYDON WEEKLY NOTES

THE loss of H.M. Airship R 101 is at very least a national disaster, but to us at Croydon it is more than that.

Brilliant and valuable to their country as were Lord Thomson of Cardington, Major Scott, Wing Commander Colmore, Lieut.-Col. Richmond and the other brave souls who perished so tragically, yet it is of Sir Sefton Brancker and Sqdn.-Ldr. E. L. Johnston that we think particularly. They were to us dear friends, and their places can never be filled. Sir Sefton was probably more responsible than anyone for making Croydon Air Port what it is. His enthusiasm for it ranged from the big conception down to the smallest details. On his frequent visits he won not only the respect but the affection of everyone there, from top to bottom. In his death Civil Aviation has suffered the severest blow that has ever been dealt to it. His wish would be that we all give to it the same unflagging energy which marked him for the great man he was, and that we should strive to establish it on the sound basis which it was his ambition to achieve.

Sqdn.-Ldr. E. L. Johnston was known to us for many years. It was about three years ago that he came to Croydon to introduce scientific aerial navigation to the pilots and ground staff, and his efforts were responsible for so many becoming 2nd class navigators. The charm of his manner was expressed in his nickname, "Sunshine Johnny," for he was always smiling. It was that charm which smoothed away the difficulties of "Dep over dL equals Cosin. mid. lat" from the minds of his pupils.

In Sir Sefton Brancker and Sqdn.-Ldr. Johnston the Guild of Air Pilots and Navigators loses its Master and Deputy Master, but not before the Guild had started moving towards the high standard they had set for it. Can they ever be replaced?

Sunday was an exceptionally busy day at Croydon, for every available machine was chartered to go to Beauvais. The Henderson Aviation Bureau reports that they were hard pressed to meet the demands of newspaper people asking for quick transport.

On the day following the disaster when one might have expected a scare against aerial travel of any kind, Imperial Airways had every seat taken on all their services.

The new Hermes engine has again shown up well. On a recent day Capt. Percival took his Hermes-engined Hendy 302 to Cannes in 5½ hours and returned in 6 hours. His average speed works out at 128½ m.p.h.

From the opposite end of the light aeroplane scale we have news of the Robinson Aircraft Co. The production model of their "Redwing" will shortly be appearing with a Genet IIa engine. Other improvements will be a wider fuselage, steerable tail skid, foot pedals instead of rudder bars, and Arens controls to the engine. I am told that she is absolutely foolproof and lands "off the clock" at less than 30 m.p.h. It thus seems that she fulfils the require-

ments of those people who have been asking for a cheap, safe machine without necessarily having a high top speed.

Yet another aircraft manufacturing company is commencing operations at Croydon. It is called Brant Aircraft, Ltd., and combines the efforts of Messrs. A. A. Sidney, L. E. Baynes and F. W. J. Grant. Their first machine is being built round the newly-designed Sidarblen compression ignition engine. Incidentally this solves the mystery of what Mr. Baynes has been doing with himself lately. He is well known, of course, as a member of the aerodrome amateur jazz band in which he plays an exhaust pipe shaped like a saxophone.

Another new firm has lately come into the transport business too, started by Mr. Cottingham, and is known as "Personal Flying Services, Ltd." of 92, Piccadilly, W.1, it is being run on the business side by Mr. Kennedy with Major "Nobby" Clark as pilot. Both these are late of Walcot Air Lines. Their equipment consists of a Junkers F.13 and a Sikonsky Amphibian. They are not competing with the regular air lines but hope to pick up specially urgent freight and passenger work to places not ordinarily served by air. The F.13 is an exceptionally comfortable machine and the cabin is one of the best fitted among the many machines seen at Croydon. She is very quiet and steady and altogether admirable for the purpose.

Imperial Airways did an interesting taxi job last weekend when Capt. Olley took a party to Gleneagles in the D.H.50. He followed the East Coast route north on Saturday and leaving Croydon at 10.30, arrived at Gleneagles six hours later, having stopped at Catterick for lunch. An excellent landing ground presented itself less than 500 yards to the back of the hotel. They returned on Wednesday by the West Coast with a lunch break at Hooton. The party consisted of mother, son, maid and baggage.

Our recent notes on British air transport have added point to the new official record of the tri-motor Ford in America. This machine in the hands of Mr. Leroy Manning, who became well known at Croydon last year, has flown a 100 km. course at 164.4 m.p.h. Its load on this flight was 2,000 kg., the equivalent of 18 passengers and a normal amount of luggage. The record for its class is raised by the big jump of 21.7 m.p.h. The Ford is normally a 14-seater, but it appears that one might expect speed from passenger machines as well as from mail carriers. It makes the efforts of our own highly prized air liners look foolish. This speed is officially recognised by the F. A. I. and is not just American hot air.

This week's departures for Australia are Messrs. Chabot and Pickthorne on a Puss Moth who left Croydon on Monday morning and Mr. Hill who took off from Lympne early on Sunday.

The traffic figures for the week are 867 passengers and 54 tons of freight.

M. L.

AIRISMS FROM THE FOUR WINDS

Mrs. Victor Bruce

THE Hon. Mrs. Victor Bruce has been experiencing bad luck on her flight to the East in her Blackburn "Bluebird" ("Gipsy II"). As briefly reported last week, she set out from the San Stefano aerodrome, Constantinople, early on September 30 (not September 29, as previously stated) for Aleppo. A burst pipe, however, forced her to return an hour later, but as soon as repairs were effected she started off again. Once more she met with trouble and had to make a forced landing in the mountains near Eski-Shehr. She was unhurt, and received every assistance from the Turkish troops stationed nearby. On October 2 she continued her flight, and when crossing the Taurus Mountains she encountered a heavy storm, so decided to turn back and land at Konia. Unfortunately her petrol supply gave out and she had to land on a plateau near Konia. Some Turkish peasants found her and she proceeded on horse-back to Konia, where she was received by the Governor. Mrs. Bruce was able to continue next day and reached Baghdad. Proceeding on October 4 she flew from Baghdad to Bushire, and left again next day for Jask. As she did not arrive here that day, search parties were sent out to try and locate her. It was not until late on October 6 that news was received that Mrs. Bruce had made a forced landing in the Kohimoborak hills, 20 miles north of Jask. A rescue party, consisting of the Assistant Superintendent of the Indo-European Telegraph Department, two assistants and a ground engineer of Imperial Airways, and a doctor, were sent out from Jask. Mrs. Bruce, however, was not hurt, and repairs to the machine having been made, it was flown on to Jask on October 7.

"Antipodes Aeronitis"

SEVERAL fresh cases of this strange malady, which was first discovered by Bert Hinkler in 1928, are reported. On October 5 Flight-Lieut. C. W. Hill, of Henlow, left Lympne in a D.H. "Gipsy Moth," and hopes to "get it over" some several days sooner than Bert Hinkler did—probably at the cost of several restless nights. The next case is a "double" one, for Major C. E. M. Pickthorne and F./O. C. J. Chabot set out in the latter's D.H. "Puss Moth" from Croydon on October 6, hoping, by working together day and night, to beat both Hill and Bert Hinkler. All three have reached Constantinople. A second attack of "flu" has prevented the malady from getting a hold on Wing-Com. Kingsford-Smith, who is at Croydon with his Avro "Avian" awaiting events. Meanwhile, Capt. F. R. Matthews—who caught the malady on September 16 (also in a "Puss Moth")—is

still suffering from a relapse in Siam, but hopes (as soon as certain repairs are effected) to get over this in a few weeks' time. Mr. A. P. Cunningham, an Australian, who was affected with a similar malady in the reverse direction, experienced a third setback on his way to England, when he crashed his Genairco biplane near Kyaukpu, Ramri Is. (250 miles N.W. of Rangoon) on October 3. He was uninjured, but his machine was damaged. We understand that several other pilots are experiencing that peculiar itching feeling prior to an attack of "Antipodes Aeronitis," while even Bert Hinkler is feeling uneasy.

R.A.F. Officers Flying to India

Two R.A.F. officers are making flights to India—Flight-Lieut. Rowe from Egypt, and P./O. Grierson from England. The former arrived at Jask on October 6 and the latter at Constantinople on the same day.

R.A.F. Baltic Cruise Concluded

THE month's cruise to the Baltic of No. 201 (Flying-boat) Squadron from Calshot concluded on October 2, with the return of three boats to Felixstowe. The boats left Oslo for Esbjerg on October 1, and the concluding stage, from Esbjerg, occupied 6½ hours. One boat had to be left behind at Esbjerg to fit a spare flying wire, and returned to Felixstowe on October 4. Except for this slight deviation, the programme was carried out as originally planned, and formed an excellent test of the cruising capabilities of these Southampton boats. The cruise was made under the orders of Group-Capt. E. R. Cr Nanson, commanding the Calshot base, with Sqdn.Ld. E. F. Turner in command of the squadron.

King of Iraq Flies Home

KING FEISAL OF IRAQ, concluding his tour in Europe, arrived by air at Baghdad from Cairo on October 1. He called at Amman en route to see his brother, the Amir Abdulla of Transjordan, and large crowds gathered at the Baghdad aerodrome. It is reported that he has bought an aeroplane and intends to learn to pilot it himself in order to encourage his people to fly.

Andree's Funeral

THE funeral, which took place at Stockholm on October 5, of Andree and his companions, Fraenkel and Strindberg, was a most impressive ceremony. The coffins were conveyed from the gunboat *Svensksund* to the Stor Church, the procession comprising about 1,000 persons. The King of Sweden and his sons, Princes Gustavus Adolphus and Carl Wilhelm, Prince Axel of Denmark, and Sir Howard Kennard, British Minister, were among those present at the ceremony.



THE HOMECOMING OF ANDREE : Denmark paid honour to the memory of Dr. Andree and his companions, Strindberg and Fraenkel, providing a naval escort when the Swedish gunboat "Svensksund" with their bodies aboard passed slowly through the Oresund en route for Stockholm. On arriving near Elsinore the vessel was met by Danish fishery inspection ships, and the fortress of Kronborg fired a salute of fifteen guns. Our picture shows an aerial view of the flotilla as it passed Kronborg Castle, the "Svensksund" being in front (on the right).

German Anti-Aircraft Exercises

METHODS of observing, reporting, and repelling air attacks were carried out in East Prussia on October 1. Not being allowed, under the Versailles Treaty, to maintain a military air force, civilian machines took part, each machine represented a flight of bombers. Reichswehr, police, firemen, the Red Cross, and the technical Emergency Corps (originally formed for use during strikes) co-operated in the ground organisation, which was a miniature of that proposed for the whole of Germany.

The exercises were carried out under General von Mittelberger, of the Reichswehr Ministry, and representatives of the Reich and Prussian Ministries of the Interior attended. The basis of the ground organisation was a network of observation and defence posts. The scheme seems to have been that of a double attack on Königsberg, the capital of this isolated German province, from the south and west. Observation posts were set up throughout the province, and the appearance of hostile aircraft was reported by them to the anti-aircraft detachments and to the central control station at Königsberg. Another important part of the scheme was the organisation for warning the civilian population of the approach of aircraft.

Mrs. Silver's Flight to Kenya

MRS. HELEN SILVER, of Kenya Colony, who has been on a visit to England, left Heston Air Park on October 3 to fly back to Kenya. Her machine was a D.H. metal "Moth," fitted with dual control, and she was accompanied by Capt. Cameron, who taught her to fly. They reached Marseilles on October 4.

German Parachutist Dead

FRITZ BESTEN, the German parachutist, alighted on a high-tension cable at Neubrandenburg on September 30, and died later in hospital as a result of his injuries.

Lifeboat for Aircraft Makes a Test

THE first official test of Dover's new lifeboat, "Sir William Hillary," built specially for distressed aircraft in the Channel, was made on September 30. A message was received at 2 p.m. that an aeroplane was in distress. The crew assembled by 2.9. Another message was received at 2.18 that the aeroplane was 4 miles E.S.E. of the Varne Lightship. The lifeboat was out by 2.25 and sighted two flying-boats at 2.45 one mile N.E. of the lightship. The crew was unaware that it was a test.

Flying Missionary Recruit Found

As a result of a paragraph in the press, in which it was reported that the Bishop of Tanganyika, in addressing the Isle of Wight Missionary Association, had stated that a young man was wanted who would learn to fly so that he could visit as padre the scattered Europeans in the Great Lakes area of Central Africa, a would-be "flying parson" has offered his services. This volunteer is now taking flying lessons and hopes to go out to Africa—very possibly fly out—next year. The Bishop is still raising money towards the £595 required for the two-seater "Gipsy-Moth" that will be needed in this work. The sphere to be covered will be from Morogoro, two hundred miles inland from Dar Es Salaam, across the Victoria Nyanza to Bukoba, about a thousand miles, and to Kigoma, five miles from Ujiji on the shores of Lake Tanganyika.

The flying parson will minister mainly to Europeans in this area but he will also hold services for Africans. It may not be possible for him to include all this area as his "parish" to begin with, for some half a dozen shelter sheds will be needed for his aeroplane at his chief stopping places, and the money for these is required.

G.38 to go on Tour

THE 4-engined Junkers G.38 (which carries the identification marks D.2000) started on a long European demonstration tour on October 4 from Dessau. The first stages of the tour will be laid over Prague, Vienna, Budapest, Belgrade, Bucharest, Constantinople, Salonica, Athens and Rome. From Rome it is expected the tour will continue westward along the coasts of the Mediterranean. The pilots in charge will be Captain Zimmermann of the Junkers company and Captain Brauer of the Luft Hansa. The machine arrived at Bucharest on October 6, where large crowds and the Crown Prince Michael, witnessed its arrival.

Ford Air-Liner's 164 m.p.h.

A 16-PASSENGER machine, carrying a load equivalent to 27 passengers, put up the official record for aeroplanes of this type to 164.4 miles an hour. This was flown over a 100-km. course—62½ miles. The previous record was held by a Bach machine with 142.6 miles an hour. The new holder of the record is the Ford three-engined monoplane of all-metal construction, similar in type to the machine seen at the Aero Exhibition at Olympia in 1929. The normal cruising speed of the Ford passenger aeroplane is well over 120 m.p.h., which shows the relatively higher average required in America. One of these machines will be giving demonstrations in this country very shortly.

New Russian Air Services

It is reported that Soviet Russia is inaugurating several new air services, one of which will be between Moscow and Alaska, a distance of 8,000 miles.

Another Proposed England-Ireland Air Route

DURING the past few years we have heard of several air routes between England and Ireland which have been proposed and even experimented with but so far none have come into regular use. The first of these routes was for flying-boats between Belfast and Liverpool, but this was abandoned after a very few flights owing to the uneconomical distance for this type of craft and the delay experienced in the River Mersey owing to fog. Last year mails were flown to London from Galway, an Atlantic shipping port, and it began to look as if we should have seen the establishment of a regular service during this year but none materialised. The latest scheme is for a route between Fishguard and Rosslare, a journey at present covered by the steamships of the Great Western Railway Company, it is proposed that flying-boats be used over the route, but as the distance is only 54 miles it is extremely doubtful whether the service would prove a financial success. When the Dail (Irish Free State Parliament) reassembles early in November, it is understood that several influential members are to press the Government to make some grant towards the development of civil aviation in that country and also for the subsidising of a regular air service between Dublin and London.



AN INTERESTING COMPARISON: Britain's smallest and largest seaplanes side by side, and both productions of the same firm—Short Bros. of Rochester. On the left is the Short "Mussel" ("Cirrus"), equipped with amphibian gear and with Mr. Eustice Short at the controls. The other machine is the new Short "Valetta" (three Bristol "Jupiters"), which has already been described in flight.

(FLIGHT Photo.)

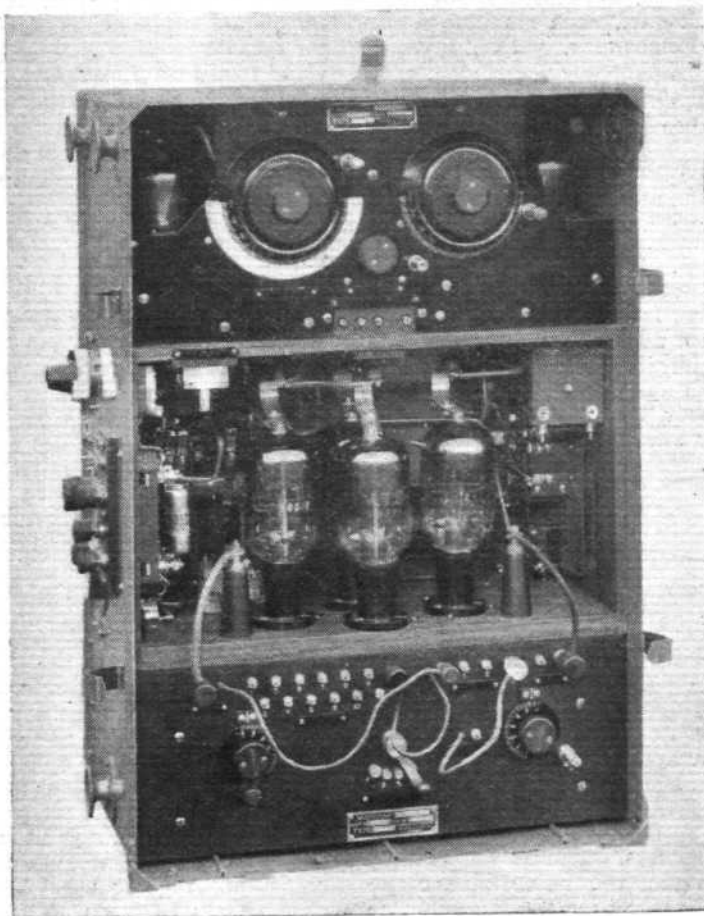
A NEW MARCONI AIRCRAFT WIRELESS SET

THE Air Ministry has now approved for use in civil aircraft the new Marconi Aircraft Set Type AD6m. This is the latest model of the well-known Marconi Type AD6 series of aircraft sets which are in use in civil, military and naval air services practically throughout the world, and has been primarily developed to meet the needs of modern commercial aviation.

In common with the other models of the AD6 series, the AD6m incorporates a transmitter of 150 watts power, and is suitable for transmission and reception of both telegraph and telephone signals.

The improvements incorporated include a new type of receiver which is particularly selective and stable in operation, employing a screened grid high-frequency amplifying valve of the latest type, a detector valve operating on the grid leak method of rectification and provided with capacity reaction, and a transformer coupled low-frequency magnifying valve. For the maximum efficiency of high-frequency selection, an aperiodic aerial system is coupled to a closed tuning circuit.

The new model meets the requirements of the Washington Convention with regard to covering the wave-lengths



The new Marconi AD6m Wireless Set, which has been approved by the Air Ministry for use in civil aircraft.

allotted to aircraft, the transmitter and receiver being adjustable to any wave-length between the approximate limits of 550—1,550 metres on machines having a normal electrical capacity. The usual transmitting wave length of 900 metres and alternative wave lengths of 870 or 930 metres, or any two other wave lengths differing by approximately 3 per cent., can be selected at will by means of the remote control unit which is provided when required.

Both the transmitter and receiver are normally mounted in a single case, but they can be supplied in separate units.

Where space is restricted and no observer or wireless operator is carried, the set can be installed in any convenient part of the machine and operated by the pilot through a remote control unit. On the other hand, where space and personnel permit, the set can be installed in such a position that the pilot or operator has access to all adjustments, so that full advantage can be taken of the wave-range and flexibility of the installation. In such cases, dual control and inter-communication equipment is useful, as it enables either the pilot or observer to use the wireless or to communicate with the other without using the wireless.

“Comrades of the Royal Air Force”

THE association known as the “Comrades of the Royal Air Force,” founded in London to link together past and present members of the Air Forces, is extending its activities to various centres within the Empire. Final details of policy have been settled by the Central Committee, with Air Commodore C. R. Samson as chairman, and a decision was reached at a recent meeting to approve of branch formation at various centres in Great Britain and the Dominions. Authority to establish such branches will be granted as and when investigation of local conditions has been made. The association, which embraces all the Crown Air Forces, has chosen as its official crest an Imperial eagle poised ready for flight and surmounted upon a globe of the world—the hemisphere in view showing the major portion of the British Possessions. Negotiations have been satisfactorily completed with certain approved organisations whereby matters of employment and charity may be suitably directed. The administration is at present controlled from Royal Air Force Station, Eastchurch, Kent, pending establishment of London headquarters. All communications should therefore be addressed to the secretary at the address mentioned, and not to Air Ministry, London.

The “I.T.C.” Trophy for the I.T.C.

WHEN recording last week the luncheon given to Miss Winifred Spooner, we omitted to mention that the very handsome trophy presented to her by the Imperial Tobacco Co. in connection with the International Touring Competition, was designed and made by the Goldsmiths and Silversmiths Co., Ltd., of Regent Street. As could be seen from the illustration published last week, this trophy possessed all those excellent qualities in workmanship and design that have been associated with the many other aviation trophies already produced by The Goldsmiths and Silversmiths Company—personally we liked the “I.T.C.” trophy best of all.

Smoke Abatement

STRIKING instances of atmospheric pollution over great distances by industrial areas were given by Mr. M. G.

Bennett, assistant superintendent of the Meteorological Office of the Air Ministry, at the Annual Conference of the National Smoke Abatement Society at Leicester on September 27. Observations at Falkirk, he said, showed that a wind from any of the directions in which industrial areas were situated would reduce visibility from a calculated 250 miles to 20 miles. From the observation tower at Bristol University he had looked down on a broad, dark belt of smoke, travelling on the wind as far as one could see. One outstanding case of atmospheric pollution at a great distance was an affected visibility at Valentia, on the south-west coast of Ireland, by smoke from English industrial centres 350 miles away.

Mr. F. Entwistle, superintendent of the aviation services division of the Meteorological Office, speaking at the same conference on visibility as affecting aviation, stated that if all smoke could be removed from this country, many more flying days per year would be possible. Pilots flying between Scotland and the south of England frequently encountered smoke haze from the Black Country when over Southern Yorkshire. Similarly, on the London-Continental route, an appreciable haze, due to the smoke of London, was met with over the Channel some miles from the Kent coast. With easterly winds, smoke haze from the industrial districts of Germany was carried over Southern England. Mr. Entwistle mentioned that on one occasion, after flying from Lincolnshire to Catterick in Yorkshire in fine, bright weather, he found all flying at the Yorkshire camp brought to a standstill by a thick haze, entirely due to the Leeds area 50 miles away, drifting on a light wind.

These considerations raised important problems in connection with the selection of sites for municipal and other aerodromes, particularly in the vicinity of industrial areas. Other factors being equal, the aerodrome should always be placed on the side of the town from which the prevailing wind blew—usually the west or south-west. Whatever precautions were taken, however, there would always be occasions, as long as the smoke nuisance persisted, when visibility over the aerodrome was affected, since the wind never blew consistently from one direction.

THE ROYAL AIR FORCE

London Gazette, September 30, 1930.

General Duties Branch

361849 Sergeant A. H. Button is granted a permanent commn. as Pilot Officer on probation with effect from Sept. 22 and with seniority of May 19. The follg. are granted short service commns. as Pilot Officers on probation with effect from and with seniority of Sept. 12:—J. R. S. Agar, H. L. Andrews, E. D. A. Bigg, G. R. Brice, T. H. Burleigh, F. Crump, P. F. Foss, A. H. Garland, M. V. Gibbon, T. P. Gleave, H. L. M. Glover, P. J. W. Hawkins, P. H. Heygate, P. W. Johnson, R. O. F. King, J. N. McAuley, R. A. McDonald, G. E. B. Nixon, P. J. Polglase (Sec. Lt., R.A., T.A.), G. F. A. Skelton, C. G. Skinner, H. E. Slowey, A. Taylor, J. A. Tester, R. Williams. W. F. Hinchie is granted a short service commn. as a Pilot Officer on probation with effect from Sept. 22 and with seniority of Sept. 12. The follg. Pilot Officers are promoted to rank of Flying Officer (Sept. 15):—R. F. Fletcher, A. J. Tunnard. The follg. are seconded for duty with Imperial Japanese Navy (Sept. 26):—Squadron-Leader R. W. Chappell, M.C., Flight Lt. J. L. Wingate.

Squadron-Leader J. S. T. Fall, D.S.C., A.F.C., remains on half-pay, scale B, Oct. 1 to 31 inclusive. The follg. Flying Officers are transferred to Reserve, Class A:—W. E. Barnes, H. C. Loch, W. C. McNeil, L. H. Mason (Sept. 26); F. G. Downing, K. Garston-Jones, W. L. Whitlock (Sept. 28); E. A. T. Murray, F. F. Barrett (Sept. 30). Lt. J. W. M. Healing, R.N., ceases to be attached to R.A.F. on return to Naval duty (Sept. 15).

The short service commn. of Pilot Officer on probation A. E. B. Trappes-Lomax is terminated on cessation of duty (Oct. 1).

Dental Branch

Flight Lieutenant (Hon. Squadron Leader) E. A. Wheeler, L.D.S. (Temp. Major, Army Dental Corps), is transferred from Army to R.A.F. (July 1). The undermentioned Flight Lieutenants, R.A.F., Temp. Captains, General List, Army, Dental Surgeons, are transferred from Army to R.A.F. (July 1):—C. F. Pitt, L.D.S., A. R. H. Bennett, L.D.S., A. P. McClare, L.D.S.

The follg. Flying Officers, R.A.F., Temp. Lieutenants, General List, Army, Dental Surgeons, are transferred from Army to R.A.F. (July 1):—B. L. Harrington, B.D.S., A. P. Atkins, L.D.S., M. J. Pigott, B.D.S., C. M. Leckie, L.D.S.

Flying Officer B. L. Harrington, B.D.S., is granted a non-permanent commn. as Flying Officer (Aug. 27).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

Lt.-Col. Sir F. H. Humphrys, G.C.V.O., K.C.M.G., K.B.E., C.I.E., is granted a commn. in Class C as an Air Commodore (Sept. 30). The follg. Flying Officers on probation are confirmed in rank:—E. K. Wallis (July 8); J. W. Brown (Sept. 25). The follg. Pilot Officers on probation of Special Reserve are confirmed in rank:—D. W. Reid (July 8); C. W. Lindsay (Aug. 30); F. B. Bristow (Aug. 30).

Pilot Officer R. C. Newton, of the Special Reserve, is promoted to rank of Flying Officer (Sept. 7); Flying Officer C. H. Howitt is transferred from Class B to Class C (Aug. 21); Flying Officer V. C. Taylor is transferred from Class A to Class C (June 22).

The follg. Flying Officers relinquish their commns. on completion of service:—S. S. Kirsten (July 27); G. Colledge (Sept. 6). Flying Officer A. J. Martin relinquishes his commn. on completion of service, and is permitted to retain his rank (Sept. 12). The follg. Flying Officers relinquish their commns. on appointment to commns. in Indian Army (Sept. 16):—W. J. M. Spaight, J. C. Lewis. The commn. of Pilot Officer on probation M. D. R. Meiklejohn is terminated on cessation of duty (Sept. 2).

Stores Branch

The follg. relinquish their commns. on completion of service and are permitted to retain their rank (Sept. 12):—Squadron-Leader H. G. Etheridge; Flying Officer J. S. Viner.

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—Pilot Officer S. Davidson is promoted to the rank of Flying Officer (August 3).

No. 608 (NORTH RIDING) (BOMBER) SQUADRON.—The follg. to be pilot Officer:—G. Shaw (Aug. 29).

PRINCESS MARY'S ROYAL AIR FORCE NURSING SERVICE

Sister Miss A. M. Herd resigns her appointment (Oct. 1).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commanders: G. W. Williamson, O.B.E., M.C., to H.Q., Wessex Bombing Area, Andover, for Engineer Staff duties; 22.9.30. N. C. Spratt, O.B.E., to Station H.Q., Duxford, to command; 29.9.30.

Squadron Leaders: H. M. Probyn, D.S.C., to No. 25 Sqn., Hawkinge; 29.9.30. R. W. Chappell, M.C., to Special Duty List; 26.9.30.

Flight Lieutenants: J. L. Wingate, to Special Duty List; 26.9.30. R. H. Barlow, to No. 7 Sqn., Worthy Down; 27.9.30. A. H. Montgomery, to No. 32 Sqn., Kenley; 24.9.30. J. R. I. Scambler, A.F.C., to R.A.F. Depot, Uxbridge; 2.10.30. N. S. Allinson, to H.M.S. *Hermes*; 1.10.30.

Flying Officers: L. T. Kerry, M.C., to R.A.F. Record Office, Ruislip; 23.9.30. D. J. Waghorn, to R.A.F. Depot, Uxbridge; 17.9.30.

Pilot Officers: V. C. F. Straatfeld, to No. 3 Sqn., Upavon; 15.9.30. H. C. O'Loughlin, to R.A.F. Depot, Uxbridge; 23.9.30. A. H. Button, to

No. 9 Sqn., Manston, on appointment to a Permanent Commn.; 22.9.30. K. M. Cass, to No. 6 Sqn., Ismailia; 14.9.30. J. B. Tatnall, to No. 45 Sqn., Helwan; 14.9.30. H. de M. Middleton, to No. 47 Sqn., Khartoum; 19.9.30. L. A. Cubitt, to No. 216 Sqn., Heliopolis; 14.9.30. G. G. Dixon, to No. 216 Sqn., Heliopolis; 14.9.30. D. W. H. Heath, to No. 70 Sqn., Hinaidi; 15.9.30. The undermentioned are all posted to No. 5 Flying Training School, Sealand, with effect from 27.9.30:—J. R. S. Agar, H. L. Andrews, E. D. A. Bigg, G. R. Brice, T. H. Burleigh, F. Crump, P. F. Foss, A. H. Garland, M. V. Gibbon, T. P. Gleave, H. L. M. Glover, P. H. Heygate, P. W. Johnson, R. O. F. King, J. N. McAuley, R. A. McDonald, G. E. B. Nixon, P. J. Polglase, G. F. A. Skelton, C. G. Skinner, H. E. Slowey, A. Taylor, J. A. Tester, R. Williams.

Stores Branch

Flying Officers: C. M. P. Hartley, to No. 6 Sqn., Ismailia; 23.8.30. R. B. Fleming, to H.M.S. *Hermes*; 25.9.30. M. J. Scott, to H.Q., R.A.F. Middle East, Cairo; 3.9.30.

French Ban on Night Flying

THE French Air Ministry has issued an order forbidding night flying over Paris, no matter what altitude.

A New Dutch Aerodrome

THE Rotterdam and The Hague municipalities have decided to co-operate in building a central aerodrome near Delft, as the Waalhaven aerodrome is thought to be too far from The Hague.

Fatal Luft Hansa Crash

A MESSERSCHMIDT M.20 air liner, on the Luft Hansa Berlin-Dresden-Prague-Vienna line, crashed when landing at Dresden, on October 6. All the occupants—six passengers, pilot and wireless operator—were killed.

Busk Studentship in Aeronautics

THE Trustees of this studentship, founded in memory of Edward Teshmaker Busk who lost his life in 1914 whilst flying an experimental aeroplane, have awarded the studentship for the year 1930-31 to Mr. Robert Hugh Francis, B.Sc. of the University College of North Wales, Bangor.

Isotta Fraschini Breaking Records

ON September 19 the Czech pilot Swozil, flying an Aero A.42 fitted with an Isotta Fraschini ASSO 750 engine, established the following speed records: over 1,000 km. without useful load, with load of 500 kg., and with load of 1,000, average speed 252.30 km/h. (156.8 m.p.h.). On September 30, Major Kalla, flying a Letov S. 516, also fitted with ASSO 750, increased the record for speed over 1,000 km. without useful load to 274.1 km/h. (170 m.p.h.). This brings the total number of records held by machines fitted with ASSO engines up to 10.

Westland Aircraft Demonstration Tours

WITH the object of demonstrating British aircraft at home and abroad, the Westland Aircraft Co. are carrying out a series of tours with the "Wessex" and "Wapiti" machines. The "Wessex" 5-seater cabin monoplane, fitted with three Armstrong-Siddeley "Genet Majors," started on October 3

from Yeovil for a two months' tour of Great Britain, Northern Ireland, and the Irish Free State. The "Wapiti," a general purpose military machine, will be demonstrated before Government officials and Air Force officers in the States of Southern Europe, South America, and China.

Brant Aircraft, Ltd.

THE name Brant is concocted from the names Baynes and Grant. The company has been formed primarily to produce an aircraft to Mr. Baynes' design to take the Sidarblen C.I. oil engine which is being developed at Croydon by Sidarblen Engines, Ltd., a company originally formed by Col. Barrett Lennard and Col. Derby and Mr. A. A. Sidney, to develop a C.I. oil aero engine to Mr. Sidney's patents and design. Mr. Sidney, who is a director of Sidarblen Engines, Ltd., and chairman of Brant Aircraft, Ltd., was at one time manager and engine designer at Beardmore's in connection with oil and petrol engine development there. Mr. L. E. Baynes, who is managing director of Brant Aircraft, Ltd., is in charge of design. He began life with the old Aircraft Manufacturing Co., Ltd., at Hendon, in 1916, and was later on Short Bros. design staff for some years, and more recently with the Blackburn and A.D.C. Companies. Mr. Grant, who is a partner in Surrey Flying Services, and has been connected with aviation since before the war, will be looking after the construction and works side of things. Machine and engine are extraordinarily interesting propositions and the development of both will go along hand-in-hand. The factory is at Waddon Aircraft Factory, Croydon Aerodrome, Surrey.

De Havillands Form South African Company

THE de Havilland Aircraft Co., Ltd., has formed an associated company in South Africa, under the title of The de Havilland Aircraft Co. (South Africa) Pty., Ltd., with head office and works at Johannesburg. De Havillands thus now control branch companies in Canada, Australia, India and South Africa, while licensees, selling and service agents exist in 25 other countries throughout the world.

THE LOSS OF H.M. AIRSHIP R 101

(Concluded from page 1114)

General and became a director of the Aircraft Manufacturing Co., Ltd. In those days he was a trenchant critic of the civil policy of the Air Ministry. When Sir Frederick Sykes quitted the post of Controller of Civil Aviation, Sir Sefton succeeded him, with the title of Director, and threw himself into his task with the greatest zeal and energy. His work was great and successful, and the very live movement of light aeroplane clubs will be one of the chief memorials to his work.

Wing Commander R. B. B. Colmore, O.B.E., was born at Portsmouth in 1887 and entered the Royal Navy in 1907. He retired in 1911, but on the outbreak of war was mobilised as lieutenant commander. He served with the armoured car division at Antwerp, and was afterwards with the armoured cars in Gallipoli and the Senussi campaign. In 1916 he transferred to the R.N.A.S., airship section, and later commanded the airship base at Mullion. Here he won distinction by evolving a scheme for dealing with the submarine menace by a combined use of airships, seaplanes, and surface craft, which was so successful that he was appointed a first-class staff officer at Plymouth, and was later on the staff of the C-in-C. Grand Fleet at Dundee, with a view to the adoption of his system all round the British coasts. The war ended before it was fully put into operation. On formation of the R.A.F., he became Lieutenant-Colonel, and after the war he was granted a permanent commission as Squadron Leader in the Royal Air Force. He was employed at the Air Ministry until 1924, when the new airship programme was inaugurated, and then became Deputy Director of Airship Development. Last January he was appointed Director, and promoted to Wing Commander.

Major G. H. Scott, C.B.E., A.F.C., Assistant Director of Airship Development (Flying) was born in 1888 at Catford, Kent, and was educated at Richmond College, Yorks, and the R.N. Engineering College, Keyham. On the outbreak of war he joined the R.N.A.S. and flew in various airships. He commanded the Anglesey station in 1916. After the war he commanded R 34 on her crossing of the Atlantic to New York and back in 1919. He was demobilised with the rank of Major, but in 1920 he joined the staff of the Royal Airship Works and devised the present system of mooring an airship, as well as designing the head of the mooring tower. Quite recently he was in command of the flight of R 100 to Montreal and back.

Lieut.-Col. V. C. Richmond, O.B.E., B.Sc., Assistant Director of Airship Development (Technical) was born in 1893 at Dalston, London, and was educated at the Royal College of Science. In 1915 he joined the R.N.A.S. and was employed chiefly on making envelopes for non-rigids. After the Armistice he went to Germany on the Inter-Allied Commission for the surrender of airships and seaplanes. Since then he has been employed at the Air Ministry and the Royal Airship Works on research and design, and was responsible for the design of R 101.

Squadron Leader E. L. Johnston, A.F.C., O.B.E., was born in Sunderland in 1891. He was a qualified master mariner, and served in the R.N.R. and the airship section R.N.A.S. He navigated the "Hercules" flight of Sir Samuel Hoare to India and the recent flight of R 100 to Canada.

Flight-Lieut. H. C. Irwin, A.F.C., was born in Dundrum in 1894. He joined the airship section R.N.A.S. in 1915 and commanded R 33 on her experimental flights.

Lieut.-Commander N. G. Atherstone, A.F.C., R.N. (Rtd.), was born in 1894 at Petersburg, Russia, and was educated at Winchester and Charterhouse. He served with the fleet until 1917 when he transferred to airships. He returned to the Navy in 1919 but retired next year. He joined the Royal Airship Works in 1927.

Flying Officer M. H. Steff, R.A.F., was born in 1896 at Luton. He joined the Navy and was present at the battle of Jutland. He then became a kite balloon officer and was afterwards transferred to airship work at Cardington. He was on duty on R 100 on the flight to Canada.

Mr. M. A. Giblett, M.Sc., Meteorological Officer, was born in 1894 at Englefield Green, Surrey, and was educated at the Universities of Reading and London. In the war he served with the R.E. as a meteorological officer, and in 1919 joined the Air Ministry. In 1925 he founded the airships section of the meteorological office. He was also on R 100 on her Canadian flight.

PUBLICATIONS RECEIVED

Houghtons Professional Bulletin. August, 1930. Ensign Ltd., 88-89, High Holborn, London, W.C.1.

Report on the Royal Air Force Promotion Examinations "B," "C," "E" and "F," held on February 4, 5, 6 and 7, 1930. Air Publication 1396. H.M. Stationery Office, Kingsway, London, W.C.2. Price 2s. net.

L'Annee Aeronautique 1929-1930. By L. Hirschauer and Ch. Dollfus. Dunod, 92, Rue Bonaparte, Paris.

Air Navigation Statutory Rules and Orders: No. 1508 (1923), as amended by No. 1260 (1925), No. 263 (1927), Nos. 36, 588, 591, 900 (1928), Nos. 984, 1001 (1929), and 334 (1930). H.M. Stationery Office, Kingsway, London, W.C.2. Price 1s. 2d. net.

The Journal of "The Royal Aeronautical Society," with which is Incorporated "The Institution of Aeronautical Engineers." No. 237, Vol. XXXIV. Sept., 1930. Royal Aeronautical Society, 7, Albemarle Street, London, W.1. Price 3s. 6d.

Wind and Water. By Manfred Curry. Country Life, Ltd., 20, Tavistock Street, London, W.C.2. Price 25s. net.

The Air Pilot Monthly Supplement. No. 11. July, 1930. H.M. Stationery Office, Kingsway, London, W.C.2. Price 6d. net.

The Gauge. Vol. 8, No. 12. August, 1930. J. J. Habershon and Sons, Ltd., Holmes Mills, Rotherham.

Parachuting. By Charles Dixon. London: Sampson Low, Marston and Co., Ltd. Price 12s. 6d. net.

Handbuch für den Flugzeugbau. By Fritz Hohm. W. E. Harich Nachf. G.m.b.H., Allenstein, Berlin. Price RM.30.

Alloy and Tool Steels. John Brown and Co., Ltd., Atlas Works, Sheffield.

AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1929

Published October 9, 1930

- 8,002. G. M. BELLANCA. Exhaust manifolds for aircraft engines. (334,923.)
- 14,831. C. A. AND D. A. STEVENSON. Signalling-apparatus. (334,927.)
- 17,056. L. W. WINTER. Transport gear for flying boats. (334,855.)
- 17,803. BRISTOL AEROPLANE CO., LTD., and L. G. FRISE. Means for clamping adjustable mountings. (334,892.)
- 19,871. J. E. TURNER and C. F. HODSON. Aircraft. (334,981.)
- 20,178. F. B. BELL. Landing-gears. (334,984.)
- 20,526. A. L. ANGUS. Aircraft construction. (334,987.)
- 20,692. E. J. PETER. Aeroplane wings. (315,001.)
- 23,293. E. HEINKEL. Testing-devices for launching-tracks for flying machines. (316,519.)
- 26,344. J. T. FLAVIN. Aerial transport apparatus. (335,036.)
- 33,474. E. SCAPARRO. Mechanical aircraft parachute. (335,104.)

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